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The Crisis of Europe — Joseph Ramai

Material and Documents

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L. Herber

THE PROBLEM OF CHEMICALS IN FOOD

Note: The following article is based on the Hearings of the Committee to Investigate the Use of Chemicals in Food Products and on testimony therein. The testimony quoted from these Hearings is intended to adduce factual data or opinions on specific chemicals or types of chemicals used (or proposed for use) in food products. The individuals whose testimony is quoted here, are not to be held responsible for views expressed in this article and do not necessarily hold the belief that the use of chemicals in food products is harmful. In fact, most of the testimony cited herein has been given to the Committee by individuals who support the use of chemicals in food products.

I

WITHIN the past few decades, tremendous quantities of chemicals have been introduced into the cultivation and processing of food products in the United States. The annual production of bread alone is estimated to involve the addition of about 10,000,000 pounds of chemical emulsifiers by thousands of bakers throughout the country. During the six-year period since the end of the war, at least 700 to 800 chemicals have been discovered for use in American food products. These substances cover nearly every aspect of production: from fertilizers and pesticides to substitutes for organic nutrients, preservatives, flavouring and colouring matter, and a legion of processing agents. There are some foods on the market that are almost entirely synthetic; the chemical content in certain instances has been increased in piece-meal fashion to such an extent that these foods no longer contain the organic contents from which they were originally derived. This is the *ad absurdum* of chemicals in food; a natural product is converted by the continual addition of chemical materials into a synthetic or near-synthetic product. Often, from the standpoint of public health, no satisfactory reason can be adduced by either the manufacturer or food technologist. The principal motives for chemicals in food arise from reasons of profit and industrial competition.

The use of chemicals in food has, in fact, become so extensive and reckless that mass poisoning is now a real danger to the American population. Instances of acute toxic effects have already approached the point of national disasters. In one case, a marketed drug, 'Elixir of Sulphanilamide', killed over a hundred people before it was tracked down by governmental agencies. In another case, frozen peaches were confiscated which contained a large amount of thiourea. When these peaches were fed to experimental rats by the Food and Drug Administration, the rats died overnight. Yet neither governmental legislation nor scientific experimentation has proved

adequate to this type of problem. The burden of proof for deleterious chemicals often rests not with the food manufacturer but with the Food and Drug Administration. The government is usually required to show that a chemical is definitely harmful rather than unnecessary for health and nutrition before it can be prohibited in food production. Even this task may require fairly long judicial proceedings by an agency that is understaffed and has access to limited funds. Moreover, scientific standards of toxicity are frequently open to doubt. Agene, for example, was used for decades in bleaching flour. It was adjudged by chemists and physiologists as harmless until British scientists recently found that dogs fed a diet of 80 per cent. white bread acquired 'running fits'. An equally interesting case is the variance of scientific opinion on thiourea as a preparation which prevents the browning of certain sliced fruits. As late as 1943 this chemical was described as harmless to man. Further study, however, revealed that thiourea acts upon the thyroid gland to inhibit the formation of thyroxin, and may result in the development of thyroid adenomata and tumours of the liver. Finally, one of the most remarkable disputes centres around the use of monochloracetic acid. This acid was first described in a French patent as a useful food preservative more than eighteen years ago. After extensive pharmacologic tests, the use of monochloracetic acid was regarded as harmless 'even in continued daily ingestion by infants'.[1] Only after the acid came into fairly widespread usage did reports indicate that this substance irritates the gastrointestinal tract, causing nausea and vomiting. Yet Dr. Franklin C. Bing, an eminent authority on nutrition and food chemistry, testified that one of the food scientists who originally characterized monochloracetic acid as harmless to human beings, 'still holds that monochloracetic acid is perfectly harmless and ought to be used'.[2] Dr. Bing recounts the story of a food manufacturer 'who wanted to submit a product for consideration by our council [American Medical Association]. He had a little monochloracetic acid in his product as a preservative, and my duty as secretary of the council was to ask him what evidence he had as to its harmlessness, and he brought that in, and I told him I did not think that the council would accept it, and the council did not. And I remember vividly getting a couple of telephone calls from outstanding pharmacologists of this country saying that they thought we were wrong in not giving approval to that particular product'.[3]

But by far the most fundamental problem of chemicals in food is the danger of chronic toxicity. Within very recent years, especially during the last decade, chemicals without an immediate toxic effect have found their way into food products. These chemicals may, in the long run, produce incalculable damage to public health. For damage of this sort, scientific

[1] Quoted in 'Food and Nutrition Section — Chemicals Introduced in the Production of Foods', *American Journal of Public Health*, Vol. 40, No. 5, May, 1950; reprinted in 'Chemicals in Food Products', *Hearings Before the House Select Committee to Investigate the Use of Chemicals in Food Products*, H.R. 81st Congress (Hearings from 14th September to 15th December, 1950) p. 49, U.S. Government Printing Office, Washington, D.C. (Hereinafter, the Hearings held during this period will be designated as 'Hearings, 1950'. References to Hearings by the same Committee of the 82nd Congress, held between 12th April and 19th June, 1951, will be designated as 'Hearings, 1951, I'.)

[2] Hearings, 1950, p. 51.

[3] Hearings, 1950, p. 51.

experimentation is extremely complex and woefully inadequate, even if the best intentions are kept in mind. Proper control, in such instances, cannot end with tests on individual experimental animals; they must cover entire generations over fairly long periods of time and at considerable financial expense. More must be learned of animal physiology than is to-day even faintly suspected by the most eminent biologists in the United States. 'I have spoken to students many times about the newer knowledge of nutrition,' declared Dr. Bing in his testimony to the *House Select Committee to Investigate the Use of Chemicals in Food Products* (U.S. Congress), 'and I use the term somewhat glibly, but in the final analysis, I think I would have to admit that we know very little compared to what remains to be found out.

'Some of the things that we do know are that the body has mechanisms by which it can handle substances commonly or naturally found in food materials, and it may have some difficulty in handling substances which are not naturally found in foods, even though they differ only slightly in chemical configuration. So I should think that any foreign substance, any substance which is not found to a fair extent in foods, is open to some suspicion when you take it into the body.'[4]

In the meantime, the use of chemicals in food — tested, for the most part, only for acute toxicity, and this often with extreme superficiality — has increased by leaps and bounds. Dr. Bing observes: 'You can pick up almost any issue of the technical magazines which come to the attention of the chemists in the food industries, and find some little advertisement in them about new emulsifying agents, or something that is a plasticizer, or food improver, as they sometimes call them. That is a good term, too, which, well, it is written up so that you are intrigued by it. And it seems that just as human beings like to take a pill to relieve their illnesses or their lack of sense of well-being, so it seems to be typical of a man in the food industry when something comes along, some problem in technology, he likes to have chemical aids to solve it. That seems to be inherent in human nature, perhaps. So this problem to-day is much bigger and broader than it was five years ago, and certainly tremendously increased over what it was ten years ago.'[5]

Chemical Fertilizers in Agriculture

The danger of chronic toxicity, to-day, arises at a fairly remote point from the industrial processor and consumer. It begins in agriculture and cattle-breeding, with a vast array of fertilizers, insecticides, pesticides, fruit colouring matter, hormones and growth stimuli. These chemicals (some of which are little understood by industrial chemists, still less by physiologists) are allowed to enter into great natural cycles whose ramifications touch upon the processes of life itself. Since natural processes are intricately tied together, an isolated view of the effect that any single chemical has upon life and nature is scarcely a basis for knowing how several of these chemicals will react together. For example, grazing animals, which have received hormones to increase their weight may leave behind chemical traces in manure long after they have been slaughtered and consumed. How

[4] Hearings, 1950, p. 42.
[5] Hearings, 1950, p. 52.

the soil, as well as the public, is affected is little known. If, as often happens, the same area of land is treated with chemical fertilizers and sprayed with insecticides, these substances may very well combine to produce a totally unpredictable effect. The dangers inherent in this problem cannot be overestimated. Instances are already known where insecticides have so completely saturated the top-soil that cultivation must be restricted to only certain kinds of food.

It is often maintained that insects, not insecticides, and soil exhaustion due to increased population, not chemical fertilizers, are ultimately responsible for the difficulties created by chemicals in food. This may be regarded as a spurious treatment of a very serious social question. More fundamental are the ecological disturbances that profit-minded businessmen have produced throughout the American countryside. For decades, lumber companies and railroads were permitted a free-hand in destroying valuable forest lands and wild life. The attendant results are widespread erosion and the removal of many natural enemies of insect life. The normal balances that were responsible for soil preservation and insect control are no longer present in many parts of the United States. At the same time that irreplaceable top-soil is washed into the rivers of the country, it is accompanied by industrial wastes that probably abet the multiplication of insects and diseases detrimental to crops.

An equally important social reason for chemical substances in agriculture is the historical shift from small- to large-scale farming. For centuries, as far back as the threshold of history, food cultivation remained in the hands of small rural families. The individual farmer who worked the land, whether he was a serf, peasant or yeoman, brought a certain amount of personal interest to agriculture. The care of crops usually fell within the horizon of an individual, who felt himself more implicated in the quality of agricultural food than large-scale absentee land-owners. Even when social oppression underlay agriculture, the individual farmer who performed the work could not escape responsibility for the crops he produced. Much attention, interest and concern were involved in earlier agricultural practices, and the farmer usually took great pride in the quality of food output. Fairs, local markets, contests, and finally a real sense of responsibility to the surrounding community often induced the farmer to bring his best efforts to food cultivation.

Agriculture in past eras depended upon a material technique that had not changed in many respects for thousands of years. Labour was arduous and famine remained a continual threat. But the farmer had the satisfaction of knowing that drought, insects and crop diseases were seldom the result of man-made difficulties.* Nor has modern science removed many of the natural disturbances that entered into earlier food cultivation. The greatest

* Naturally, during earlier historical periods the land was abused, especially after the end of the Punic Wars in Rome, when latifundia based on slave labour were introduced on an extensive scale. It is also true that poor grazing practices led in Greece and Spain to the denuding of the land and to considerable erosion. But, on the whole, the faults of agriculture in mediæval Europe and in the East were largely the results of the technological limits of the time. This is not the same type of problem that we have to-day, where side by side with the great strides in science we have abuses that compare with, and exceed, the depredations of the land during antiquity.

difficulties of the past were solved when machines or knowledge of ecology, not synthetic chemicals, were brought to the farm. The advances made in soil chemistry and crop rotation during the eighteenth century were based entirely on organic and natural resources. Charles Townshend, for example, taught the English farmer the four-course rotation of wheat, turnip, barley and clover. Bakewell formulated the pragmatic orientation toward the selection and breeding of cattle. There is no better description of the agricultural advances of the eighteenth century than the word 'husbandry'. The rule-of-thumb researchers of the period were intent on garnering, rather than substituting for, the forces of nature. The 'conquest of nature' meant a rational use of natural resources, not a disruption of the biological processes around man.

It can never be too strongly emphasized that every tract of soil and every area of countryside comprises a relatively unique ecological situation. Just as climate, land, vegetation and wild-life may vary greatly from one part of the country to another, so every square mile presents in some degree a distinctive balance of natural forces. Food cultivation by man, which must be regarded as a form of botanical 'domestication' imposed on what was originally virgin and wild land, always threatens to upset this balance. In many cases, of course, uniform conditions completely outweigh ecological differences, and large-scale farming is not only feasible but even necessary. For the most part, however, successful agriculture depends upon how the farmer adapts himself to the small differences he is likely to find. He must understand not only gross variations in soil, but particularly his own soil as it is affected by the local vegetation, insect and animal life it supports. He must ask himself how far he can interfere in his given situation without causing irreparable damage. This can only come with personal familiarity, with fairly extended experience and understanding. The farmer must bring not only insight to the specific characteristics of his land, but also sympathy, interest, and a socially-responsible attitude.

With the shift to large-scale farming, the emphasis of agriculture changed from the quality to the quantity of food cultivation. This meant that the land was to be exploited like any other resource under capitalism — in a drastic and one-sided manner. The 'success' of large-scale, quantitative farming depended upon a uniformity of resources, an 'average' in the agricultural situation. Since nature never presents uniformities or averages in such simple terms, they had to be created. To a large degree this task devolved upon chemicals. Thus fertilizers were used to compensate for differences in soil; chemical hormones were employed to standardize the size of crops; and growth stimuli were discovered to replace the results of variations in climate. The most elementary lessons of man's relationship to the soil and nature have since been abandoned for 'synthesis' — for artificiality not only in agriculture but also in nature. In short, 'husbandry' has been replaced by 'chemistry'.

But just as capitalist farming has 'created' an 'average' agriculture, so it has created an 'average' farm worker. Wherever the farmer has been dispossessed by huge corporate growers, he has also been replaced by rural labourers who view the intimate problems of crop management with complete indifference. On large estates to-day, 'farmers' often include aviators who spray insecticides, tractor drivers and sales' agents; not to

mention harvesters who never sow and sowers who never harvest. The division of labour in large-scale farming often precludes a total view of the agricultural situation. Even the agricultural technician, who can provide an over-all view, must change his orientation to meet the needs of 'average' farming. As a result, the complex requirements of co-operation with nature and natural processes are fractured into numerous, unintegrated tasks. Management is often supplied — at least in motivation — from remote heights above, by business interests which include little appreciation for the problems of the soil. Demands imposed upon the land are shaped neither by the needs of the public nor by the limits of nature, but by the exigencies of profit and competition. All the gaps in the picture — from the variations of the land to the indifference of farm labourers — are filled by chemicals.

Fertilization by organic and inorganic (chemical) fertilizers plays a decisive part in altering various soils for 'average' farming. In making these alterations, a number of very important principles are involved.

Under natural conditions, the fertilization of land by organic materials is a process in the course of which complex substances are broken down into simpler plant nutrients. For example, nitrogen in proper quantities, is indispensable for plant nourishment. Ordinarily, this element is provided through the well-known 'nitrogen cycle'. When proteins decay, they are eventually reduced to carbon dioxide, water, ammonia and free nitrogen. Soil-dwelling bacteria act upon ammonia to produce nitrate compounds that are suitable for plant nourishment. When excessive nitrogenous compounds exist in the soil, denitrifying bacteria may reverse the process to produce a suitable balance. Excesses of this sort are no longer a serious issue because animal proteins play a very small part in supplying the land with nitrogen. Burial conventions require that the human body shall not be used to further the cultivation of food, and the human body, in turn, consumes the proteins of cattle that once eventually reached the soil. But other means exist. Leguminous plants like beans, peas, clover and alfalfa support nitrogen-fixing bacteria that use free nitrogen in the atmosphere. Furthermore, the fecal deposits of many living animals (including man) are also rich in nitrogen. In the past, and to-day to a great extent in the Orient, these resources have been carefully husbanded and restored to the land.

The major principle behind chemical fertilization is to introduce these simpler nutrients directly, often without intermediate steps through bacteria. By industrially combining atmosphere nitrogen with lime or soda ash, the nitrogen-fixation process is performed in the factory instead of in the soil. Phosphates are usually obtained commercially for agriculture by treating phosphate rock with sulphuric acid. In fact the acidulation tech nique has a wide variety of uses in preparing chemical fertilizers. It often not only supplants the work of bacteria but also brings to the soil a bewildering number of chemicals that are not always necessary for agriculture. The added chemicals often play no rôle whatever in soil fertility. They either represent residual substances that cannot be avoided because of the acidulation tchnique itself, or at best they are added to render inorganic fertilizers soluble and absorbable. Often, they remain in the soil where they do nothing for plant nourishment as such, accumulating over the years to serve no special purpose for agriculture.

Do these new accretions harm the soil? Do they play any rôle in human health? Generally speaking, is enough known of the effect chemical fertilizers have on the soil or on the human body to lend inorganic fertilization to adequate controls?

Behind each of these questions are even more obscure problems.

During the hearings of the Select House Committee, for example, Mr. J. I. Rodale of the 'Soil and Health Foundation' suggested the complexities that are introduced by inorganic fertilizers as part of his objections to such fertilizers. 'In some cases they (chemical fertilizers) are caustic. They actually have a burning quality that will kill bacteria. In other cases they are too soluble. It is as if an individual were forced to eat when he were not hungry. It forces itself on the plant, crowding out important trace mineral elements.

'The most important reason why some chemical fertilizers are harmful,' continued Rodale, 'is because they contain more than one element. The one element that they need to feed the plant in order to make it soluble is tied in with some other element which gives it that solubility and which is there practically only for that purpose.

'An example is a very common fertilizer called superphosphate. What they are after is to feed the plant phosphate. But it is mixed with sulphuric acid to give it that solubility. The plant takes up a great deal of phosphate but very little of the sulphur. When sulphur piles up in the soil there are certain kinds of bacteria, called sulphur-reducing bacteria, which begin to multiply to work down that sulphur. As they work they have to feed. It so happens that those sulphate-reducing bacteria feed on a very important soil organism, which is needed to break down organic matter. Therefore when you have a lot of sulphur piling up in the soil there are bacteria multiplying which are killing off certain organisms which the farmer needs to break down organic matter.' This problem, which was first introduced because of the acidulation technique, reaches even further back. 'When you grow a crop of anything,' concludes Rodale, 'that root that remains in the soil must break down for the next crop. The roots are very valuable. The roots of the preceding crops give nourishment to the next. If the soil does not contain enough of this breakdown bacteria it will not be able to furnish the food in time for the next crop.'[8]

Rodale's testimony may be regarded as a very unorthodox view in the United States. It was opposed at the hearings by a battery of 'experts' who vehemently argued for chemical fertilizers, 'judiciously' mixed with organic substances. Although the 'experts' freely acknowledged that organics keep the soil friable, easy to work and permeable to water, they pointed up transport difficulties and, in fact, the entire arrangement of modern society as objections to supplying the land with enough organic materials for agriculture. 'It is neither economically feasible nor physically possible to rely upon organic manures exclusively in our present-day agriculture,' observed Dr. Richard Bradfield of Cornell University, who particularly tried to place inorganic fertilizers in perspective from the specialist's standpoint. 'Organic gardeners make a great deal of what they call the "law of returns", by which they mean the return to the soil of all the elements which the crop removes from it. Such a system is feasible in a

[8] Hearings, 1950, p. 855.

primitive, sparsely populated area in which practically the entire population is engaged in farming, and in which there is a high proportion of the population which can collect and transport city wastes to the farms which feed the cities. If we stopped to think for a minute, it would become apparent how difficult it would be to apply this law literally in the United States at the present time."[7]

In support of inorganic fertilizers, Bradfield insisted that such fertilizers supply elements in the same form that they are released by organic substances. In fact he found organic fertilizers of very limited value because 'the organic matter which is generally available for use on soils does not contain these elements in the proportions in which they are needed to give the best growth of crops on most soils.' Now we may reserve the social problems raised by the exclusive use of organics for later discussion. But Bradfield's unfavourable comparison of organic with inorganic fertilizers may be regarded as resting on entirely spurious premises.

Dr. A. F. Camp, Vice Director in charge of the University of Florida Citrus Experimental Station makes the observation that 'the difference between trees fertilized with organic fertilizers and those fertilized with chemical fertilizers lay primarily not in the field of nitrogen, phosphorus, potassium, and calcium but in the lack of the so-called minor or secondary elements such as magnesium, manganese, copper, zinc, and boron which were present as impurities in the organic materials but not present in appreciable amounts in the chemical materials. Thus, in the case of bonemeal which was credited with containing only nitrogen, phosphorus, and calcium, it was found that one of the most important elements it supplied was magnesium which is universally deficient in Florida citrus soils and for which citrus trees have a very high requirement. Superphosphate contained only traces of magnesium and when substituted for bonemeal resulted in trees that were acutely deficient in magnesium. All of these so-called minor elements which are actually as necessary to the development of citrus trees as the so-called major elements were found as sizable impurities in the natural organic materials because, just as in citrus, they were necessary to the growth or development of the organisms from which these organic materials were derived'.[8]

Indeed, it hardly tells us much to criticize the efficacy or proportions of organic fertilizers that are 'generally available'. What is 'available' has a very restricted meaning in the lexicon of experts to-day. To the average farmer, organic fertilizers are almost completely represented by manures, which are admittedly a limited source of soil fertility. Even if we include the best composts in use to-day (and this is being exceptionally generous) the term 'organic fertilizer', as it is currently employed, would ignore a wide range of potentially valuable substances which could be brought to the soil. Curiously enough, the 'experts' carry the greatest responsibility for this situation. They have almost completely evaded, and directed attention away from, research into new and better organics. Indeed, the current emphasis on inorganic fertilizers in agricultural laboratories and projects has reduced organic substances to an 'indispensable' but entirely ancillary position in food cultivation.

[7] Hearings, 1950, p. 526.
[8] Hearings, 1950, p. 802.

Bradfield went on to deny that 'valid evidence exists' to show that 'crops grown with chemical fertilizer are more attractive and nutritious to insects and plant pathogens'. This too will be discussed elsewhere. His denial, however, that evidence exists as to whether 'crops grown with chemical fertilizers are less nutritious to men than those grown with organic fertilizers' is extremely questionable.[9] Slowly and in the face of extreme hostility from the 'experts', a number of soil scientists and practical farmers are producing evidence that inorganic fertilizers may seriously reduce the quality of crops. The discussion is still being cast in a strictly adaptive framework, as part of a general reconciliation to the use of chemicals. It is widely accepted that the contemporary social scene renders the use of inorganics necessary and few are willing to abandon chemical fertilizers as such. But, as Dr. K. C. Beeson pointed out, 'Fertilization with large quantities of nitrogen can also result in some lowering of certain nutritive constituents in the plant. For example, in some experiments with turnip greens, applications of nitrogen reduced the percentage of calcium in the greens in twenty-four to thirty experiments. Similar results have been obtained in other experiments. Fertilization with the ammonium salts of nitrogen has resulted in a reduction of vitamin C in plants, but fertilization with the nitrates under the same conditions did not affect vitamin C. The reasons for the difference are unknown.'[10]

Perhaps the most strongly emphasized point made by all the 'experts' in favour of inorganic fertilizers is the conclusion that chemicals increase crop yield. 'The most important reason for the use of fertilizers,' said Bradfield, 'is that they increase the yield of practically all crops on all but our most fertile soils. This point is so generally appreciated that detailed elaboration is unnecessary'.[11] Very well, then — let us elaborate!

By leaning on poorly-evaluated experimental facts, the 'expert' generally knows that the addition of certain chemicals to the soil can increase the size of crops. Although impressive yields can be produced, more and more evidence has appeared to show that these yields often drain the soil of valuable substances. Dr. William A. Albrecht of the University of Missouri astutely observed at the Hearings that 'a fertilizer balancing the supply of nutrients in the soil is merely a help to take all the other things out faster. So if you fertilize a soil with nitrogen, which is deficient, and grow a bigger crop, you merely have taken all the other things out faster and by virtue of that observation people will say, "Oh, yes, fertilizers ruin your soil". Well, they have just helped you wear it out faster. That is all.'[12]

But *is* that all? 'We have built up the lime, the phosphorus, the potash,' continues Albrecht, later in his testimony. 'Now we come along and shove under the nitrogen and that is very demonstrative for the first year or second year until we pull the other things down. We had the same thing with limestone. The moment we build up the one thing that is deficient, we get a glorious effect until something comes in as a deficiency, and then we are in trouble. . . . Lime is a necessity but lime alone is not enough. Many years ago the farmer, who did not know any chemistry, gave us a very

[9] Hearings, 1950, pp. 524 and 525.
[10] Hearings, 1951, I, p. 65.
[11] Hearings, 1950, p. 523.
[12] Hearings, 1950, p. 208.

interesting jingle which is very true: "Lime and lime without manure make father richer but son poorer."

'A very fine old truth, very fine, because when you lime, the calcium next to the hydrogen serves to push the other things out. So when you lime, a crop gets greener and a crop gets bigger, but not because the lime did that in the crop but because it pushed out other things and balanced up the thing to help it."[13]

Before chemicals can replace organic substances without leading to disaster, more must be known of the factors which enter into soil composition, of the soil itself and finally of plant and animal nutrition; in short, of a stupendous natural process concerning which agronomists know surprisingly little. The soil, as Dr. Beeson has put it, is 'a highly complex dynamic system of minerals, inorganic chemical compounds, organic compounds, living organisms, air and water'.[14] Yet soil cannot be synthesized in the laboratory; and entire areas of plant nutrition, including photosynthesis, remain a complete mystery. In fact, as Beeson tells us, 'There is no known laboratory method or group of methods by which all the nutritive constituents in food can be measured and evaluated in terms of the nutrition of man or animals. Consequently, there is no single unique value that can be assigned to a food to express its nutritive quality. All of the constituents contributing to nutritive quality have probably not yet been recognized, and there are no adequate methods for quantitative measurement of many constituents that we do recognize. Therefore, no measurement of the over-all nutritive quality of a food has ever been made'.[15]

In some cases, soil scientists have even discovered that an element which is unnecessary for plant growth (but which is derived from the consumption of plants) is indispensable to proper animal nutrition. Soil deficiencies of cobalt, for example, have resulted in nutritional disturbances in cattle and sheep. Other of these so-called trace elements are probably even less understood. The point is that whereas the 'experts' tend to break up, simplify and crudely manipulate the agricultural situation, supporters of organic farming usually predicate themselves on the complexity and far-reaching character of food cultivation. This is more than a difference in technique. It is a basic antagonism in outlooks toward natural phenomena. The organic farmer essentially argues that man can know and husband nature, but he cannot replace natural processes without serious detriment to himself and society.

Insects, Insecticides and the 'Human Bug'

If the rejection of chemical fertilizers rests on the complexity and obscurity of the agricultural situation, there are very direct reasons for regarding other chemicals in agriculture as detrimental to human health. Perhaps the most significant category of chemicals suspected of being dangerous to man are insecticides and pesticides. The problem that these substances presents is very simple: All are poisonous to one or several forms of lower life. They are employed on the principle that they either do not remain in foods that finally reach the consumer market or that the

[13] Hearings, 1950, pp. 224 and 225.
[14] Hearings, 1951, I, p. 62.
[15] Hearings, 1951, I, p. 61.

human body finds them harmless in the amounts that do remain. Both 'principles' are now open to grave doubts by physiologists and biochemists.

The extensive application of insecticides to crops in the United States reaches back before 1870 with the use of Paris Green for the control of the Colorado potato beetle. Afterwards, a number of extremely toxic chemicals came into use. Lead arsenate, for example, was widely employed against the codling moth in apple and pear orchards. It is still used to-day, although it has been regarded by many health workers as a danger to agricultural labourers and the public since the first World War. The use of insecticides has now grown to incredible dimensions. With the passage of the Federal Insecticide, Fungicide and Rodenticide Act of 1947, about 16,000 brands of insecticide preparations have been registered with the government. These brands range from poisons absolutely deadly to man to very questionable 'hormone' herbicides like 2,4-D dichloro phenoxy acetic acid. 'One of the disturbing things about the recent advance in insecticides, in the discovery of new insecticides,' said Dr. Dunbar to the Select Committee, 'has been that a great many very potent and valuable insecticides have been developed on which very little is known, either about their chronic or acute toxicity or about their fate after they are applied to food.

'In many cases we do not know whether the insecticide after application is absorbed into the body of the food, whether it is destroyed on weathering, whether it degenerates, perhaps, into some more toxic substance. There were even insecticides put out for which no chemical method of identification or analysis is known.'[16]

Many insecticides and pesticides are known in some way to affect higher animal organisms, including man. Hydrogen cyanide, a fumigant commonly used on grains and cereal foods, is described by a Food and Drug official as 'moderately to extremely poisonous; however, under normal conditions of use the fumigant volatilizes so that no significant [! — L.H.] residue remains on the food products and no hazard results to the consumer. An exception [! — L.H.] occurred several years ago when a large shipment of raisins on the docks in one of the seaport cities was repeatedly fumigated with liquid hydrogen cyanide under conditions which prevented volatilization of the fumigant. These raisins were distributed and resulted in numerous illnesses to consumers'.[17] We may very well wonder how many digestive illnesses reported to doctors throughout the country are due to unsuspected poisons in food that were not discovered by the Food and Drug Administration.

It is maintained by many 'experts', that when insecticides are produced from simple compounds they can be washed away and kept from directly affecting the public. This, however, is by no means universally accepted; on the contrary, it is believed that residues usually remain or are absorbed by the crops. According to Dr. Francis E. Ray, Director of the Cancer Research Laboratory (University of Florida), arsenic 'in the form of copper arsenate or lead arsenate is commonly used as an agricultural insecticide and fungicide. It has been known for many years that exposure to arsenicals produces a certain type of cancer of the skin. More recent evidence is that inhalation of arsenic dust — and sprays — may cause cancer of the

[16] Hearings, 1950, p. 34.
[17] Hearings, 1950, p. 73.

lung. It is possible that other types of internal cancer may be caused by the long-continued ingestion of so-called non-toxic doses of arsenicals. It is suspected that the arsenicals used in growing tobacco contribute to the high incidence of lung cancer among heavy smokers. Arsenical sprays on tobacco and food should be prohibited'.[18]

Another 'simple' chemical (indeed, an element) that has come into widespread use against insects is selenium. Experimental study by the Food and Drug Administration indicates that selenium and its compounds 'are highly toxic and are capable of producing insidious poisoning. When as little as three parts of selenium (in the form of selenized corn) was added to each million parts of the diet of rats, it produced liver disease (cirrhosis) in the majority of the animals within a year. Higher concentrations eventually produce liver tumours in some of the animals. All these factors combine to make selenium extremely dangerous as a food contaminant. Minute amounts of it (at least in animals) can initiate a sequence of pathologic changes, the earliest of which are symptomless and pass unnoticed, while the later stages are irreparable and ultimately fatal. These facts combined with our conviction that the use of selenium-containing sprays could be avoided, have been the basis of our reluctance to set any tolerance whatever for selenium residues on fruit'.[19]

In 1942, the Food and Drug Administration initiated a series of experiments and studies to ascertain the extent to which ordinary packing house washing removed selenium from oranges, and the degree to which this substance accumulated in the soil after repeated usage. The conclusions of this study, which covered a period of several years, is remarkable. 'Washing as ordinarily practiced removed little or none of the selenium,' dryly observes a memorandum of the agency to the Select Committee. 'Soil in groves with a history of repeated spraying showed a selenium level ten or more times that of unsprayed groves, and the flesh of oranges grown on the soil showed the same selenium level as above, even though no spray had been applied to this crop.'[20] As of the hearings, however, the Food and Drug Administration has not been able to remove this substance from the market. Even State agencies, with whom the Administration discussed the insecticide on 17th January, 1950, were of the opinion that a selenium product was 'necessary under certain conditions to control mites'.[21]

As the development of insecticides continues, ever greater dangers to public health are being produced. Perhaps one of the gravest hazards arises from recent insecticides developed around hydrocarbons — the organic insecticides like the chlorinated hydrocarbons (chlorinated camphene, etc.), the organic phosphates (parathion, etc.), and so on. Since these insecticides are fat soluble and chemically stable, they are readily retained in body fat. The human body can acquire parathion, DDT and similar hydrocarbons from any number of vegetables, fruits, milk and even the flesh of sprayed fowl and cattle. No limit has been agreed upon by the 'experts' on how much of these substances can accumulate in the fat of the organism. Indeed,

[18] Hearings, 1950, p. 641.
[19] Hearings, 1950, p. 409.
[20] Hearings, 1950, p. 410.
[21] Hearings, 1950, p. 411.

aside from the fact that insecticides can be intrinsically harmful, it may be supposed that the hydrocarbons are especially dangerous because they may enter the blood stream in larger quantities precisely during illness, when stored fat is being released by the body to resist infection and disease.

According to an article by W. A. Brittin, head of the food laboratory of the Beech-Nut Packing Co.: 'These organic insecticides reached the market for general use before adequate information was available on the acute or chronic toxicity of the chemicals involved . . . with the exception of one or two insecticides, methods of analysis were lacking which were specific for these various organic spray residues.'[22] When chlordane was introduced for use in agriculture, for example, one manufacturer described the insecticide as being half as toxic as DDT. Afterwards, the belief was expressed in sales literature that chlordane 'is among the safest of all available organic insecticides'.[23] According to Dr. Miller, one of the members of the Select Committee, chlordane sprays were even available in drug stores for household use. If we are to accept the opinion of Dr. Lehman of the Food and Drug Administration, however, the truth appears to be that 'chlordane is one of the most toxic of insecticides we have to deal with. . . . First of all, it penetrates the skin very readily. Therefore, anyone handling it could be poisoned. Or if it is used as a household spray, the potential hazard to living in these houses is quite great because of the ability of chlordane to penetrate the skin and because of the volatility of the insecticide and the possibility of poisoning by inhalation. More to the point is that it is very toxic to the liver and kidneys of an individual. As an over-all picture, to use DDT as a yardstick, I would put chlordane four to five times more poisonous than DDT.'[24] Yet at the time that the Food and Drug Administration conferred with a manufacturer of this substance, (23rd September, 1947) it was reported that 700,000 pounds of chlordane had been sold, and another company had sold approximately 300,000 pounds. When Lehman was asked if chlordane was employed extensively as an insecticide he replied that 'based on poundage it must have been quite widely used'.[25] Thus far, to the knowledge of this writer, the Food and Drug Administration has not been able to prevent its continued sale to food growers.

Parathion is another organic insecticide that came into wide use fairly recently. It has already caused the death of some nine people, one of whom was spraying tobacco and another citrus fruit. Although Dr. Lehman believes that this insecticide is 'quite safe for use' and that no 'evidence' exists to show it is harmful to consumers eating foods sprayed with parathion, he was obliged to make the following judgement: 'Parathion is a liquid. It penetrates the skin. It is very poisonous. Very small amounts will produce fatal poisoning.'[26] This order of opinion — that a substance is 'very poisonous' but no 'evidence' exists to show that it will harm consumers when used on crops — is often the most favourable response that can be elicited from governmental agencies like the Food and Drug Administration. But some biochemists and health workers who are not obliged to maintain an acute sensitivity to the pressure of industry allow themselves less

[22] Quoted in Hearings, 1951, I, p. 537.
[23] Hearings, 1950, p. 389.
[24] Hearings, 1950, p. 389.
[25] Hearings, 1950, p. 389.
[26] Hearings, 1950, p. 407.

restrained opinions. Dr. Franklin C. Bing, in conjunction with a committee on food and nutrition, has made the more sweeping observation that, 'Contrary to previous beliefs, it now seems likely that a substance which is poisonous to one form of life is very apt to be found to some degree toxic for other animals, including man'.[27]

This observation appears to have received its most striking confirmation with the use of DDT, an insecticide which for years was heralded as completely harmless to man and extremely effective against insects. A considerable literature has fostered the belief that DDT is so free of any hazards to human beings that it may be sprayed directly on the body for protection against such parasites as lice. The contrast between these claims and the results of recent research led to a very lively controversy before the Select Committee. Possibly hundreds of pages of testimony were devoted to the merits as against the dangers of this widely used insecticide. It is interesting to note that few experts were prepared to maintain that DDT is completely harmless; the dispute actually centred for the most part, on whether DDT, once regarded as without any hazard whatever, is to-day responsible for an epidemic of nervous and physical disorders!

This controversy reached its most acute point in the testimony of Dr. Morton S. Biskind, who has devoted himself to extensive research into the pathological symptoms of DDT poisoning. According to Dr. Biskind: 'The introduction for uncontrolled general use by the public of the insecticide DDT, or chlorophenothane, and the series of even more deadly substances that followed has no previous counterpart in history. Beyond question, no other substance known to man was ever before developed so rapidly and spread indiscriminately over so large a portion of the earth in so short a time. This is the more surprising as, at the time DDT was released for public use, a large amount of data was already available in the medical literature showing that this agent was extremely toxic for many different species of animals, that it was cumulatively stored in the body fat and that it appeared in the milk. At this time a few cases of DDT poisoning in human beings had also been reported. These observations were almost completely ignored or misinterpreted . . . . DDT is as lethal in repeated small doses as in larger single doses. In low-grade chronic poisoning in animals, growth is impaired, and the implication of this observation for the growth of children should be given serious consideration. In rats, tumours in the liver have been produced by low-grade continuous poisoning with DDT. DDT is stored in the body fat and is excreted in the milk of dogs, rats, goats, and cattle and as we have shown, in that of humans, too. Virtually all these effects have also repeatedly been observed in known DDT poisonings in human beings. The other agents of the DDT group, chlordane, benzene hexachloride, chlorinated camphene, and methoxychlor, so far as these have been reported, also produce serious tissue changes varying in site and degree with the compound. Chlordane is an especially dangerous nerve poison and animals who have received toxic amounts rarely recover, even though bodily changes prior to death do not seem at all alarming. Fortunately in my own limited experience with chlordane poisoning in man, I can report that with stringent avoidance of further exposure and intensive nutritional therapy to help repair the tissue damage,

[27] Hearings, 1950, p. 47.

recovery does occur, though this may not be complete. Benzene hexachloride changes the chromosomes of plants and probably, too, those of animals. The possibility that this agent may adversely affect the heredity of human beings must be taken into consideration. Already in one report from Europe, seedlings treated with benzene hexachloride were so altered in their heredity that it was suggested that nondegenerated stocks be used for seed subsequently. . . . We are dealing with double-edged swords, for the very substances now promoted to increase the size of our crops in the long run turn out to be detrimental to agriculture itself. All these substances and the fantastically toxic parathion, too, inhibit the growth of certain plants, and compounds of the DDT group also persistently poison the soil, so far as present evidence goes, for five or six years and possibly indefinitely.'[28]

In the course of his testimony, Dr. Biskind carefully elaborated the symptomology of DDT poisoning. A comparison of these symptoms with alleged 'virus' epidemics in many American communities has suggested to him that many of these epidemics may actually result from mass DDT poisoning. Biskind's experience with individual patients suggests that this belief is by no means as reckless as it first appears. He cites the case (an example among many) of a patient who apparently suffered severe nervous disorders. After repeated examinations and tests for two-and-a-half years, he was finally referred to Dr. Biskind for treatment. 'When I saw this patient,' observes Dr. Biskind, 'he had an enlarged tender liver, signs of nutritional impairment, reduced ability to feel vibration in his legs and a reduction in his pulse pressure. Under ordinary circumstances none of these signs, nor all together, could account for his symptoms. When he was advised to give up his job and seek less toxic employment, to remove all traces of DDT and chlordane from his environment, was given nutritional therapy to alleviate the liver damage and put on a diet low in insecticide residues, he showed prompt improvement within a week. Four months later he was almost free of symptoms. He was then unknowingly exposed to DDT in a restaurant kitchen which had just previously been aerosoled with DDT. Within half-an-hour the entire syndrome returned and required more than a week to subside.'[29] It may be noted that Dr. Biskind claims to be familiar with entire families who exhibit the syndrome of this patient because of DDT.

Experimental evidence favourable to DDT ordinarily rests on situations where a group of people are voluntarily exposed to a few repeatedly large doses of the insecticide. Since no acute pathological findings are reported by these 'experiments', it is assumed that DDT is harmless to human beings except in cases of individual sensitivity. Thus the tendency is to regard all admitted cases of DDT poisoning as exceptional, where an individual rather than a public reaction is at stake. This approach is slowly being reversed by a number of researchers. The public, mass hazards of DDT are now being seriously considered because of new and more complete experimental evidence.

A considerable amount of information on DDT has been supplied by the Texas Research Foundation, an independent non-profit institution

[28] Hearings, 1950, pp. 700-701, 713.
[29] Hearings, 1950, pp. 703-704.

supported entirely by private business interests. According to Mr. John M. Dendy, head of the analytical division of the foundation:

'1. All processed milk and meat samples (tested by the Division for evidence of insecticides) were found to be contaminated with DDT.

'2. The degree of contamination ranged from 3.10 parts per million of DDT in lean meat to 68.55 parts per million in fat meat. In milk the contamination ranged from less than 0.5 parts of DDT per million to 13.83 parts per million.

'3. Both corn and sunflowers sprayed with insecticides were found to absorb the chlorinated hydrocarbons in unchanged form.

'4. The rate of absorption was found to be cumulative, the degree of contamination increasing with each spraying. The extent of absorption in corn ranged from zero parts per million where there was no spraying to 8.11 parts per million after two sprayings with insecticide. Contamination of the sunflowers ranged from zero for no spraying to 3.72 parts of insecticide per million after one spraying and 7.40 parts per million after two sprayings.'[30]

Mr. Dendy concludes as follows: '. . . one of these insecticides [a reference to several organic insecticides tested by the Division, including DDT], when sprayed on a crop such as corn is absorbed by the corn. The dairy cow or beef cow which feeds on the corn in turn absorbs a portion of the chemical in its fat, and the insecticide is passed on to the human being who consumes milk or beef from the animal. In experiments in the laboratories of A. J. Lehman, M. I. Smith, and H. J. Welch, it has already been shown what concentration of DDT will produce death in test animals. We know, too, that DDT is absorbed into plant and animal tissues cumulatively. Therefore, we can only conclude that the continued indiscriminate use of DDT and other chlorine hydrocarbons holds an ever-increasing hazard to the public health.'[31] Later in his testimony, Mr. Dendy points out that, 'Milk containing small concentrations of DDT has been found by most of the investigators in the field. Even though the intake is small, the fatty accumulation in the tissues as the result is magnified as high as thirty-four times the original intake. In other words, with a diet of ten parts per million you could expect, in some instances, 340 parts per million in the fat'.[32] It is interesting to note that Dendy flatly refuses to acknowledge the adequacy of the tests which either support the harmfulness or the harmlessness of DDT to human beings. 'As I see it, in this particular field,' he observes, 'we exposed almost everything to the indoctrination of DDT. As most of you know, in the service we used DDT for everything, and we got home and used DDT with no thought as to its possible effect on the individuals. Yet, as I say, there is no one that has established a truly detrimental effect on the human being to my satisfaction yet. *There has been no elaborate human test made yet.* [My emphasis — L.H.] Someone has to authorize, delegate and carry on such experiment, to ascertain whether or not all this wealth of information is going in the wrong direction. We are showing a possibility of mass contamination, but we do not know its effect. We know it has an effect on test animals, we can show that, but we do not

[30] Hearings, 1951, I, pp. 218-219.
[31] Hearings, 1951, I, p. 220.
[32] Hearings, 1951, I, p. 222.

know its human effect."[33] Perhaps we have misunderstood Mr. Dendy, but this is the acme of the positivist method: animals are known to respond adversely, but since no test has been made on man, Dendy is not satisfied that DDT is detrimental to human beings! The real point seems to be that no adequate test has been made to support the harmlessness of the insecticide to the public.

In the meantime, DDT is ubiquitous. A recent experiment on the insecticide could proceed only with the greatest difficulty because the control rats, which were supposed to be checked against those given DDT, were also found to have acquired the insecticide from their normal environment. Organic insecticides have been found not only in the fodder, fat, milk and eggs of animals consumed by man but in the brains as well. The dangers of DDT to public health have been echoed in the reports of Dr. Lehman, who acknowledges under questioning by the Select Committee 'that the potential hazard of DDT has been underestimated. . . .'[34] But few remarks sum up the meaning of DDT to the public health more vividly than the following quotation from a British food journal (cited by Dr. Biskind):

'Atomic bombs and DDT will be regarded by many as the two most notable scientific developments of the war. They have now been brought together in a more direct and scientific sense by recent British research carried out by the Pest Infestation Laboratory. Radioactive isotopes produced at the Harwell Atomic Pile have been used to study the biological movement of DDT residues. . . .' After reporting that an insecticide almost identical to DDT has been found in the 'gizzard, the liver and the kidney, the tissues of the heart and brain, and the sciatic nerve fibre' of test hens, the quotation concludes: 'These new results give strong confirmation for the view that DDT is a hazardous contaminant of animal and human foodstuffs. Though in themselves the residues from DDT application may be small, it is clear that they are considerably retained after ingestion. Toxic effects of a harmful if not lethal nature could arise from the cumulative absorption of DDT residues.'[35]

Actually, the coupling of atomic bombs with organic insecticides as the most noted scientific developments of the war is not a helpful amalgam. Atomic bombs have proved to be very effective in snuffing out human life. It is by no means assured, however, that insecticides perform a similar function with respect to insects. If we are to accept a number of very remarkable facts brought out before the Select Committee, it would appear that not only do insecticides often fail to provide a long range solution against insects, but they may even result in the widespread appearance of new pests. It is ironic but apparently true that the use of many insecticides leads to the development of resistant varieties of insects, while producing new pests by destroying their natural enemies. 'The New York *Times* last April (1950),' claims Dr. Biskind, 'carried items indicating that because the wheat crop was threatened by green bugs and red spiders, more than 200,000 acres had been sprayed with parathion by airplane. What was omitted from the news dispatch was that the crop was threatened only because the prior use of DDT had killed off the normal predators of these

[33] Hearings, 1951, I, p. 233.
[34] Hearings, 1950, p. 388.
[35] *Food Manufacture*, November, 1950.

two resistant insects, permitting them to flourish uncontrolled. Apparently the remedy for too much poison is still more.'[36] A similar situation has been reported by leading entomologists like Dr. Charles E. Palm of Cornell University. 'As far as the same number of insects,' declares Dr. Palm, 'we probably had most of them before, but we have cases in our own experience where we have some minor pests that have become of major importance — I say possibly — through the use of insecticides, I think of the red-banded leaf roller on fruit. It was always a minor problem, and as long as we used lead arsenate for control of the codling moth, it was no particular problem to the commercial fruit grower. But there is the possibility that DDT has reduced the parasites of the red-banded leaf roller that used to keep it under control; now we have the red-banded leaf roller as a problem that we have to contend with because we still have to control the codling moth with DDT. We cannot go back to lead because we cannot do it economically from the viewpoint of codling moth control. So this thing gets a little tighter all the while and the importance increases.'[37]

This type of problem has become so acute in recent years that there is a tendency for 'experts' to juggle the effectiveness of an insecticide against the natural predators of other pests which may also be destroyed. Dr. V. B. Wigglesworth, of the Agricultural Research Council in Cambridge, England, was obliged to suggest that 'an insecticide which kills 50 per cent. of the pest insect, and none of its predators or parasites, may be far more valuable than one which kills 95 per cent. of the pests, but at the same time eliminates its natural enemies. Perhaps this is where the future of chemical insecticides lies, not as a substitute for, but as a complement, to the more subtle and more remunerative methods of biology'.[38] The entire meaning of insect control by insecticides threatens to be upset by the very consequences of insecticides. In an article, appropriately called 'The Philosophy of Orchard Control', A. D. Pickett of the Dominion Entomological Laboratory in Nova Scotia writes 'that when a chemical is used for some specific purpose, such as the control of a fungus disease, it may increase the survival potential of one or more pests which were unimportant before the spray was applied. An example of this is the increase in population of oyster shell scale and European red mite following applications of elemental sulphur'.

The British have tried to show some moderation in the use of insecticides; the Americans, however, work on the principle that the bug must be bludgeoned . . . or else! The difference in national attitudes reflects itself in the fact that while British 'experts' are thinking of reducing insecticides and, in some measure, getting nature to work with them, the American 'experts' continually increase the dose of an insecticide as the pest grows more and more resistant, until complete resistance has been achieved. At the same time, the increased dosage adds to the contamination of food and tends to complete the destruction of natural enemies, including not only other insects which are helpful to man but also wild life and birds.

Insects, to-day, destroy more than $4,000,000,000 worth of crops a year.

[36] Hearings, 1950, p. 716.
[37] Hearings, 1951, I, p. 173.
[38] Hearings, 1951, I, p. 302.

The problem of controlling them, as Dr. Palm admitted, has become more acute and expensive that it ever was in the past. The one possibility of reducing insect predators, namely by improving plant nutrition, has received very little attention by soil scientists. Yet it is in this area of investigation that some of the most interesting facts and results have been brought to light. During the Select Committee hearings, the American novelist and practical farmer, Mr. Louis Bromfield, frankly stated his belief that the 'increasing attack by insects and disease upon our agriculture and horticulture has arisen largely through poor and greedy agricultural methods, through the steady deterioration of soils and the steady loss of organic material with which nitrogen is closely affiliated, and the increasing unavailability of the natural elements through the loss and destruction of soil structures and content. In other words, a sick soil produces sick and weakened plants which are immediately subject to disease and insect attack. In properly managed soils the necessity for using poisonous preparations injurious to animals and people is greatly diminished and in many cases disappears altogether. The general deterioration of most soils in the United States since the first plough entered them is closely related to the increasing attack of disease and insects and the consequent short-cut use of poisonous dusts and sprays later consumed by humans.'[39] Falling back on his extensive experience in farming, Bromfield went on to say: 'I myself farmed and gardened in France, on land that had been in use for 1,200 years, for seventeen years without ever using a dust or spray. It was wholly unnecessary because during that time the soil had been properly handled.'[40]

According to Mr. Bromfield, the University of Missouri 'has found that sufficient amounts of the element nitrogen will control the attack of chinch bugs on corn. They found that corn not suffering from nitrogen starvation was simply not attacked by the pests'.[41] Similar experiences have been obtained 'in relation to the attack of the green bug on wheat' in Kansas. 'The green bug,' observed Mr. Bromfield, 'does not start on one side of the field and work his way across. They always go to work on the yellowish spot in the field and they work out in a circle. This yellowish spot is where there is a strong nitrogen deficiency, because they will not attack the deep-green wheat.'[42] Bromfield's remarks are a matter of record in the scientific journals and have even received confirmation from workers in the field who still regard the use of insecticides as indispensable to agriculture.

A Note on 'Prime Hormones'

Chemical substances are not only introduced into the soil and sprayed on crops, but they are also injected on an ever-increasing scale into cattle and fowl. An extraordinary example was cited by Dr. Clive McCay. 'As you are aware,' Dr. McCay told the Committee, 'some producers of chickens are introducing under the skin into the neck of the chicken diethylstilbestrol. Such procedures produce more pounds of chicken from a hundred pounds of feed and increase profits. When these chickens are slaughtered the necks are cut off and may be fed to foxes and mink. Some of these farms have

[39] Hearings, 1951, I, pp. 294-295.
[40] Hearings, 1951, I, p. 295.
[41] Hearings, 1951, I, p. 294.
[42] Hearings, 1951, I, p. 307.

reported substantial failure in breeding. Now the question arises whether enough of this compound finds its way into the flesh to affect the person who consumes the chicken.

'The same type of problem arises when meat-producing animals are fed compounds to injure the thyroid so that the basal metabolism of the pig or steer will be lowered and more meat will result from each pound of feed. Does enough of the compound fed the animal remain in the meat so that the consumer will be injured?'[45]

Despite a furious attempt by manufacturers of cattle hormones to prove the contrary, some of the most eminent endocrinologists in the United States no longer regard stilbestrol as a 'problem' to be decided upon either favourably or unfavourably. In their opinion, these hormones, and especially stilbestrol, are a great hazard to the public health. According to Dr. Robert K. Enders, chairman of the Department of Zoology in Swarthmore College, 'it is against the public interest to permit its [stilbestrol's] use and sale under present conditions'.[46] 'The supporters of the use of diethylstilbestrol,' observes Enders, who experimented with the hormone for three years, 'always cite that the drug is used in medicine with inference that it is, therefore, harmless. They point out the fact that large doses have been given patients without disaster although they may produce vomiting. [This is reminiscent of the kind of experiments conducted with DDT — L.H.] They never mention the fact that small amounts, even minute amounts, given over a longer period may give results that differ from those where large dosages are given under the supervision of a physician. Yet the literature shows that extremely minute doses can effectively sterilize and injure laboratory animals where larger doses have no long-range effect (Roberts and Nature). These small doses do not produce vomiting. Nor do the supporters quote a leading endocrinologist who says:

' "In women there is evidence that oestrogens are concerned in the etiology of mammary cancer. Not only does the clinical evidence point to such a conclusion, but now, with the lapse of time, cases are being reported in which cancer of the breast has followed prolonged treatment with oestrogens."

'Supporters of the use of diethylstilbestrol always say that "in a properly treated fowl" there is no residue or if there is it is discarded with the head or that there is no effect of the drug detectable on humans. Apparently the definition of what constitutes a "properly treated" fowl and fowl as they reach the market are far from the same thing. Having examined the heads of poultry that had been killed for market, I can assure the committee that a considerable number of chickens contained unabsorbed portions of pellets of the drug. . . . What can and does happen is well illustrated by an examination of caponettes, as sold on the open market. An expert examined fifty heads from one well-regulated packing house. He found pellets in twenty-six of the heads. Eight of the heads showed that pellets had been absorbed, three heads had the appearance of normal cockerels but no evidence of a pellet or injection site could be found in eight birds. This means that in 16 per cent. of the chickens sold the site of implantation was in such a place that it was sold with the meat. Even if

[45] Hearings, 1950, pp. 85-86.
[46] Hearings, 1951, I, p. 430.

only half of these had a residue of diethylstilbestrol left, 8 per cent. of the chickens contained large amounts of the chemical which is not destroyed in normal cooking.

'The reluctance of the trade to use animal charcoal to mix with the pellet to mark the site of the injection may be due to the fact that the site of injection may be included in the sale of the fowl.'[45]

Commenting on damage that stilbestrol can inflict, Dr. Enders warned that 'one two-hundredth of the dose, that is of a maximum dose, given regularly over a period of time will kill the (experimental) animal. Now while two one-hundredths of a milligram given over a period of time will kill the animal, as much as two milligrams given over the same period of time to an animal of the same weight will not kill him. To me that can only mean one thing, that small doses are much more toxic than large doses'.[46] Enders observes that mink fed with stilbestrol 'were the poorest mink I have ever seen that were still breathing. That is, they lost their hair, they were fat and puffy, you could put your finger in the skin and dimple it and the skin would not come back, there were scales around the external orifices because something was wrong with the urine, and, as I say, the few survivors were the most miserable animals I have ever seen for animals that were still breathing'.[47] The testimony of Enders indicates that large enough doses of stilbestrol will stop ovulation in women, profoundly alter the blood picture in chickens and cause changes in the reproductive tract of human beings. 'Anyone who has examined the reproductive tracts of experimental animals fed on poultry waste shudders at this prospect. Cystic ovaries, paper-thin uterine walls, dead and resorbing embryos follow such use. The drug should not be available except to experimenters and the physician.'[48]

Dr. Carl G. Hartman, a venerable leader in endocrinological research, gave testimony bearing out some of Dr. Enders' opinions before the Select Committee. 'Whenever you tamper with one gland you tamper with all the others,' he warned. 'When the ovaries or the testes are removed, the physiological effect is profound in the organism. If you give too much thyroid, you injure the ovary or the testes. We have to think of the body as a whole, and when you have an excess of one hormone over another you get effects which reverberate with the entire organism.'[49] Hartman's testimony was centred around synthetic chemicals that have estrogenic effects, of which 'stilbestrol is the queen of them all'.[50] These estrogenic chemicals not only find their way into meat but also into the cosmetics and homes of millions of women throughout the United States. When Hartman was asked if the estrogenic chemicals destroy the fibrin and fibrinogin in the blood, he replied: 'I would not be able to say as to that, but I do know in the dog, for example, estrogen causes profound changes in the bone marrow where the red blood cells are made. A dog, in three months, will die of

[45] Hearings, 1951, I, pp. 430-431. *Consumer's Research Bulletin* reports that the Food and Drug Administration now requires the labelling of poultry treated with an insertion of diethylstilbestrol.
[46] Hearings, 1951, I, p. 440.
[47] Hearings, 1951, I, p. 440.
[48] Hearings, 1951, I, p. 432.
[49] Hearings, 1951, I, p. 447.
[50] Hearings, 1951, I. p. 454.

asphyxia because it does not have red blood cells enough to go around. In the chicken likewise the blood-forming organs are profoundly affected.'[81]

Although it is reported that the Canadian government plans to prohibit the use of stilbestrol in poultry, the use of this chemical has increased enormously in the United States over the past two years. 'The acceptance of the hormonized, or chemically treated birds, by the public [as though the public is familiar with the facts! — L.H.] has reached national proportions,' reports Dr. Arthur D. Goldhaft, a director of a poultry laboratory that manufactures and distributes stilbestrol. 'The major markets in America report a substantial increase of sale of this type of poultry meat with an increasing demand for this product. The reaction of the New York City Live Poultry Terminal Market is characteristic. This market records a phenomenal gain in chemically treated birds in 1950; in fact, the hormonized birds have practically sounded the death knell of the legions of cross broilers that have been such a standby in the market for the past ten years. In the first ten months of 1950 they have gone from a low of 0.46 per cent. of the total receipts — less, turkeys, ducks, and geese — in January to 25.77 per cent. in October.'[82]

We may, perhaps, compare these remarks with the reaction of Dr. Miller, a member of the Select Committee, to the report of Dr. Enders:

'*Dr. Miller.* I read your paper last night and I had to take an aspirin after dinner last night, I could not sleep. It disturbed me for a while. It was disturbing to think what it may do to the human race.

Dr. Enders. That is what I say, the vegetarians may inherit the earth.'[83]

Dr. Enders expresses agreement 'with those endocrinologists who say that the use of the drug to fatten poultry is an economic fraud. Chicken feed is not saved; it is merely turned into fat instead of protein. Fat is abundant in the American diet so more is undesirable. Protein is what one wants from poultry. By their own admission it is the improvement in appearance and increase in fat that makes it more profitable to the poultryman to use the drug. This fat is of very doubtful value and is in no way the dietary equal to the protein that the consumer thinks he is paying for'.[84] The truth is that even more is involved. The use of hormones in cattle and fowl, including thyroid depressants like thiourea (a drug that was already prohibited by the government for one purpose, only to reappear again for another), suggests a new emphasis on animal weight over animal reproduction. Dr. Albrecht, noting the tendency to ignore the mineral quality of cattle feeds for the carbohydrate and fat content, remarks that the 'business of fattening cattle and pigs, more than reproducing and growing them, has been the much heralded agricultural success with livestock. In Missouri, the pig crop that goes to market is only 60 per cent. of that delivered by the sow in the litters of pigs at their birth. Dairy calves at weaning time are only 60 per cent. of the total conceptions. Diseases of the udder, of the reproductive organs, and others of the dairy cow — so baffling to veterinary science as to call for legislation — threatening to kill the very animals, are rampant'.[85]

It seems fairly apparent that the extension of hormones from face creams

[81] Hearings, 1951, I, p. 455.
[82] Hearings, 1950, p. 814.
[83] Hearings, 1951, I, p. 442.
[84] Hearings, 1951, I, p. 432.
[85] Hearings, 1950, p. 206.

and cosmetics to stock-breeding and poultry will only serve to reinforce the trend toward carbohydrates which was begun with the improper feeding of cattle. The use of hormones in this connection is still relatively new. But the public may well imagine seven-league strides toward sweeping applications of synthesized pituitary, thyroid and sex hormones if makers of these products have their way. Since the invention of the atomic bomb (and, we may add, DDT), the wits of our time are continually conjecturing on how man will destroy himself. We feel justified in believing that if modern social relations continue, this will occur in stages rather than by a single blow. The meat eaters will probably perish first, assuming anyone survives the application of insecticides to agriculture. After the vegetarians take over, most of them will probably die from 'improvements' in new and better insecticides. Those who survive will undoubtedly kill themselves with the atomic bomb and, finally, to complete irony by irony . . . the insects will inherit the earth.

II

Thus far we have examined the function and 'possibilities' of chemicals in agriculture and stock-breeding. Now, we shall attempt to accompany our product — sprayed by poisons and injected with hormones — to the next great stage: the processing of food products for the market. Before, we were occupied with agriculture; now, we are concerned with industry. But since agriculture simply reflects industry to-day, since both are thus oriented toward quantity instead of quality, the reader will not be surprised to learn that the prevalence of commercial over nutritive ends originates in the processing of foods. In this connection, Dr. McCay assures us, we are guided by a great tradition. 'Since very early times, in the interests of making more profits, men have attempted to introduce chemicals into foods in order to make a cheaper product appear like a better one.'[56]

The Fate of Bread

In accord with great traditions, let us take the fate of bread. Ecclesiastical literature describes bread as the 'staff of life'. So profoundly has the importance of bread been etched on human civilization that our great divines often contrast the body with the spirit by saying: 'Man does not live by bread alone.' At the very least, this implies that man also cannot live without bread. The implication was true until fairly recently. It is now an open question whether the product which currently passes for bread in the United States is any longer the same food that inspired many earlier sermons, aspirations, dreams — indeed, vast historical movements.

'Bread traditionally was made from flour, yeast and salt,' profoundly avers Dr. William B. Bradley of the American Institute of Baking, 'and that is what it is made from in most countries other than this one.'[57] These are memorable words. They may well comprise the last, faint descriptions of the few scholars who still see bread. Indeed, bread seems to be travelling on the road toward extinction, for in this country, at least, it is being made with the addition of many synthetic substances and chemicals.

[56] Hearings, 1950, p. 95.
[57] Hearings, 1950, p. 193.

Do these chemicals mark any improvement? Do they serve any beneficial function? Perhaps we may answer these questions by contrasting trends in the improvement of bread with the substances out of which many 'breads' are now made in the United States.

We know what enters into 'traditional' bread. Now a better, more nutritive bread is one to which has been added milk, eggs and/or butter. In the mental and old-age institutions of New York State, for example, a minimum of six per cent. fluid milk and two per cent. wheat germ is required for an acceptable bread. This bread, according to Dr. McCay, 'costs only a half-cent more than the worst'.[38] Yet despite the small difference in price, a growing tendency among bakers has favoured the replacement of valuable natural and dairy nutrients by chemical substances that may either be harmful to the public health or may at the very least contain less or none of the nutritive values in the foods they have supplanted. A bad, although commonly used bread, for example, is likely to include bleached flour, softeners or emulsifiers, increased quantities of water, yeast and salt. Dairy products will have been 'successfully' removed.

The way in which wheat is refined and bleached to-day has radically altered the nutritive weight of bread in the modern diet. Research shows that a greater proportion of mineral richness in wheat is to be found in the outer layers of the berry. Yet it is usually this part that is removed for the making of bread and cake, while the less valuable endosperm is retained. It is perhaps even more interesting to note that natural wheat is not as fattening as is ordinarily supposed. A pound of red winter wheat has about 1,471 calories. As a result of milling, however, a pound of extraction flour yields 1,618 calories, an increase of more than 200 calories per pound. For every eight pounds of white bread consumed, the caloric equivalent of a pound of natural wheat is unnecessarily added to the diet. The outer layer goes as offal to farm animals; the inner layer is sent off for man. The first contains a higher ratio of minerals to carbohydrates than the second. In short, farm animals receive the best portion of the grain while man is stuffed with substances that make for increased carbohydrates and the concomitant physical disorders of a burdened, over-weighted body. The bread industry in the United States has tended to become a modern Circe: turning men into swine — in appearance if not in habits.

But the problem does not end at this point. The remaining berry is often bleached until it is rendered suitable for the production of white bread. To-day this may mean that the berry is subjected to oxides of nitrogen, chlorine, potassium bromate, bitrosyle chloride, benzoyl peroxide or any 'permitted' combination of these chemicals. Are these chemicals harmful? Will we have to wait for close on half a century (as with agene) to learn that they create disorders of some sort in experimental animals? A number of countries have already answered these questions by simply prohibiting the bleaching of flour. Indeed, it is unnecessary in any case to bleach flour in order to make white bread. When flour is stored and permitted to age, it will turn white naturally. The use of chemical 'maturing' agents arises principally because storage facilities are too expensive, insects have increased as a problem for stored foods generally and contemporary methods of distribution favour quick processing as

[38] Hearings, 1950, p. 98.

against traditional techniques. Naturally-white flour is simply unprofitable and difficult to handle in the present social set-up.

Another 'development' in bread is the introduction of emulsifying or softening agents. The typical method for determining whether bread is fresh or not is by feeling it, by 'playing the piano' (as the industry puts it) on the bread rack in retail stores. Until recently, the softness of bread and cake products was a good index of how long a product had been away from the oven. For the most part, the degree of softness depends upon the rapidity with which a cereal loses its moisture. Surface-active materials like natural fats, lecithin in egg yolk and some plant substances which are in themselves valuable to the body will retain air and moisture in grain foods and thus keep these products soft without necessarily keeping them 'fresh'. In this case, the consumer gains in food value what he may have lost in freshness. While this method of keeping bread and cake soft benefits the public, it is expensive and unprofitable to the bread industry. 'Naturally', a 'way out' of the 'horrible' dilemma had to be found. *Naturally.*

During the 'thirties, enterprising researchers discovered that chemical surface-active agents like the mono- and diglycerides and polyoxyethylene monostearates could achieve the desired end. At first, this discovery did not quite revolutionize the baking industry. At the time that emulsifiers were first put forward, observes Mr. George T. Carlin of Swift and Company, 'the bread-softness vogue had not become as pronounced as to-day and we never thought in terms of softness in 1937. In fact, we tried to patent their (emulsifiers) use as staling retarders but found our usage patent application had been anticipated by at least ten years'.[59] During the war, however, the emulsifier industry prepared an extensive sales campaign for the baking industry until the idea finally began to bear 'fruit'.

At this writing, the public now has little choice between breads which contain emulsifiers and those which do not.* According to G. F. Gauger of the Purity Baking Company, an estimated 75 per cent. of the bakers in the United States use emulsifiers in bread. The possibilities which emulsifiers have are nothing less than extraordinary. Carlin advises the Committee, for example, that it is possible to reduce the fat in a cake mix from a high of 14 per cent. to zero. The Swift Laboratories 'have made suitable mixes with 0 per cent. shortening content with the synthetic emulsifier'.[60] Not only could the fat content be manipulated at will but 'the reduction would make a cake that would be perhaps more appealing'.[61] Mr. Carlin adds 'that the egg content of a cake mix parallels the fat content. Fat makes a cake tender, eggs make it tough. In other words, the eggs, the coagulation of the eggs will offset the tendering influence of fat, so when you reduce fat, you may also simultaneously reduce the eggs'.

'Mr. Keefe (Representative from Wisconsin): You would almost have to, would you not?'

[59] Hearings, 1950, p. 291.
[60] Hearings, 1950, p. 294.
[61] Hearings, 1950, p. 295.

* As we go to press, the New York *Times* of 14th May, 1952, reports that the Food and Drug Administration has prohibited the use of certain polyoxyethylene monostearates in breads sold in interstate commerce.

'Mr. Carlin: Unless you wished a tough, rubbery cake, you would.'[62]

If we are to accept the opinion of a number of food specialists, however, the principal danger of certain emulsifiers comes from the physical damage they have produced in experimental animals. Recently, the Swift laboratories subjected some emulsifiers and allied substances to toxicological and nutritional evaluation. The experiments centred on the effect which 'Myrj 45' and 'Sta-Soft' (polyoxyethylene monostearate) have on rats, hamsters and rabbits. The results obtained were summarized by Dr. Edward Eagle as follows:

'. . . Single doses (20 milliliter) of Sta-Soft or Myrj 45 in rabbits changed the normally cloudy, alkaline urine containing varying amounts of white crystalline precipitate to a clear, acid, precipitate-free urine containing 5.9 to 6.5 milligrams polyoxyethylene glycol per milliliter. . . .

'The rats fed Sta-Soft showed occult blood in the feces . . . the Sta-Soft rats showed no unusual gross pathology; microscopically, however, they manifested unusual gastric, lymphoid, renal, and testicular involvement.'[63]

The level used in these experiments were five, ten, fifteen and twenty-five times the amount recommended for use in bread and cake. According to Dr. Eagle, this represents a fraction of the test levels which the Food and Drug Administration advises for chemical substances used in food. 'Furthermore,' observes Dr. Eagle, 'the Food and Drug Administration states in writing, in scientific journals, that in order to prove the non-toxicity of any substance, it has to be fed to animals at a level of 5 per cent. with no harmful effects. These materials cannot be fed to animals at 5 per cent. with no harmful effects. . . . There are some people who feed a small dose to a rat, for example, and say that since man, a 70-kilo man weighs 350 times as much as a 200-gram rat, then man can take 350 times as much as a rat can take. That is very poor reasoning.

'The best example I think you can give for that is aspirin. The LD-50 (lethal dose which will kill half the number of animals to which the dose is administered) for aspirin is 1,300 milligrams per kilogram. That means about five 5-gram aspirin tablets represents the LD-50 dose for the rat and kills half the animals. If a man weighs 350 times the weight of that rat, then 350 times 5 aspirin tablets is 1,750 aspirin tablets, and no one would ever say that a man can take 1,750 aspirin tablets and survive. . . . If you can cause harm to any animal with anything, that material is not good for man, and that is the reasoning behind a good many of the discussions with Food and Drug people. Man is the most sensitive of animals — at least, they regard him so — so that any material which is toxic to a rat or a hamster or a rabbit is unsafe for man.'[64]

Independent experiments by Dr. B. S. Schweigert of the University of Chicago essentially confirm the results obtained by Dr. Eagle. Schweigert submits the following summary:

'The effects of feeding 5 or 15 per cent. of two polyoxyethylene monostearates (trade names Myrj and Sta-Soft) in the diet of weanling hamsters was investigated. Thirty-three animals were used in each group and the growth rate, food utilization, general appearance, gross pathology

[62] Hearings, 1950, p. 295.
[63] Hearings, 1950, pp. 297-298.
[64] Hearings, 1950, p. 301.

and histological abnormalities were noted and compared to those observed for comparable groups fed 5 or 15 per cent. prime steam lard. The basal diet was designed to be adequate in all known nutrients. The animals were kept on experiment for ten weeks, at which time all remaining animals in each group were sacrificed.

'A significant reduction in the rate of gain was observed for the groups fed either 5 or 15 per cent. Myrj or Sta-Soft as compared to the groups fed lard. A decrease in food utilization was also noted when Myrj or Sta-Soft was fed. Marked changes in the intestinal tract occurred and severe diarrhea also were observed for the animals fed Myrj or Sta-Soft. Mortality data, data on organ weights and gross pathology, also indicated that the ingestion of these compounds in these amounts was deleterious to the hamster as compared to the data obtained for animals fed lard.

'Animals fed 5 or 15 per cent. Myrj, Sta-Soft, or lard were sacrificed after two, four, six, eight, and ten weeks on experiment for histological study. Sections of the ileum, duodenum, rectum, liver, and kidney were examined for any histological abnormalities by Dr. Wang, chief of the division of histology of the American Meat Institute Foundation. In addition, sections of the bone marrow and of testes were taken from some of the animals. Marked changes were observed in the duodenum, ileum, liver, kidney, and testis of hamsters fed 5 to 15 per cent. Myrj or Sta-Soft after two to ten weeks on experiment. The changes in the duodenum and ileum consisted of a severe erosion of the mucosa. Necrosis of the liver, decreased spermatogenetic activity of the testis, and tubular degeneration of the kidney were also observed.'[88]

A Food Miscellany

The fate of bread is only part of an entire industrial and profit-mad pattern. Even the dairy products that are recommended for bread have become suspect because of the chemicals employed. Butter, for example, was relatively pure food until recently. To-day it is common to dye this food a sickly-yellow colour. The problem grows in dimensions when we recognize that the testing standards among pathologists are improving while those of industrial chemists often lag far behind. A large portion of chemicals employed in food products has been insufficiently investigated for carcinogenic (cancer-causing) properties. They have been tested primarily for acute toxicity. Another portion either has been or is being used which is allied to known carcinogens. Still others are poisonous under some conditions and 'less toxic' under other circumstances.

'Butter yellow,' notes a memorandum from the Food and Drug Administration, is a colouring matter that was 'used for a long time before it was discovered to be carcinogenic, at least in animals.'[89] It belongs to an entire class of chemicals known as the AZO compounds which have been found

[88] Hearings, 1950, pp. 320-321.
[89] Hearings, 1950, p. 71.
Note: Butter yellow is no longer in use as a food dye, but it is listed by the Food and Drug Administration as 'food colouring (former)' — formerly in use. The Food and Drug Administration describes it as having once been 'commonly used as a food colour' and occasionally discovered to be in use, either surreptitiously or through ignorance.

to produce cancer in mice. Oil orange E, another dye 'in general use', according to Dr. Francis E. Ray, Director of the Cancer Research Laboratory with the University of Florida, 'caused tumours in seven out of seventeen mice, fourteen months after the start of the experiment — fourteen months is about half the life of a healthy mouse. An eighth mouse showed extensive liver damage'.[67] According to a list prepared by the Food and Drug Administration, over 800 chemicals 'have been used or are proposed for use in or on foods, or in such a manner as to constitute potential food contaminants'.[68] Many of these chemicals have crept into foods for extremely obscure purposes. The public, for example, does not have the faintest idea that phenyl alpha naphthylamine is an anti-oxident that is known to have been used in chewing gum. Yet this chemical is regarded by the Food and Drug Administration as toxic and 'not suitable for food use generally'.[69] Some substances, like potassium iodide, are used as nutritive supplements in 'iodized salt'. 'However, potassium iodide *per se* is a poisonous substance. Moreover, its use in even relatively small quantities may lead to adverse effects in the case of persons suffering from tuberculosis and possibly other disease.'[70] Sometimes, a chemical like saccharic acid, which is considered to be 'harmless' in pure form, is rendered toxic in commercial form because of impurities.

Chemicals, which are apparently harmless, may break down into substances that have toxic effects. Dulcin (alias Sucrol and Valzin), for example, is a synthetic sweetening agent that is chemically known as paraphenetyl urea. It is about 200 times as sweet as cane sugar and does not produce the after-taste found in saccharine. According to Dr. A. J. Lehman, Director of the Division of Pharmacology of the Food and Drug Administration:

'Although it has been available for over fifty years no investigation of its possible adverse affects when consumed daily in small amounts over a long period of time was made until a few years ago when the Food and Drug Administration studied the problem. Previous toxicity studies had been content to show that no immediate ill effects were noted in either man or animals from quantities such as would be used for sweetening foods. The fact that several workers had reported that Dulcin could break down to para amino phenol in the body made us suspicious of it. Para amino phenol is also formed from acetanilid and is responsible for that drug's poisonous effect on the blood. Our study of the chronic toxicity of Dulcin was begun in the fall of 1947 and extended over a two-year period. It consisted of incorporating Dulcin or one of three other synthetic sweetening agents into the diet of rats and observing the effects on growth and survival throughout their lifetime. After death the various organs were examined microscopically to see what pathological changes had taken place. As the experiment progressed it became increasingly evident that the toxic

[67] Hearings, 1950, p. 641.
Dr. Ray does not indicate if Orange E oil is or was used in food. He does make the following general observation: 'I would suggest to the committee that we have not adequately tested our so-called certified pure-food colours for carcinogenic properties.' (p. 641.)
[68] Hearings, 1950, p. 69.
[69] Hearings, 1950, p. 69.
[70] Hearings, 1950, p. 75.

properties of Dulcin make it unsuitable for use in food. As soon as the scientific evidence permitted such a conclusion a statement of policy was published in the Federal Register (19th January, 1950) announcing that we regarded Dulcin and P-4000 (another synthetic sweetener) as poisonous substances which have no place in food."[71]

Dulcin, it may be noted, was used in food products for sufferers of diabetes mellitus. Anyone who is familiar with the characteristics of this disease may well know the extraordinary danger that toxins — especially blood toxins — present to diabetics. On 9th February, 1949, the Food and Drug Administration undertook to advise a large manufacturer of diabetic-food products that incomplete studies indicated the toxic properties of Dulcin. After an exchange of letters and oral views that continued into September of the same year a representative of the Food and Drug Administration observed that 'we were somewhat surprised to learn that your company had continued to use Dulcin although fully aware of the fact that studies that were under way were indicative of the probable toxicity of Dulcin'. The Company finally discontinued the use of this substance. The Food and Drug Administration, it may be further noted, also learned that Dulcin not only inhibits growth and affects the blood adversely, but that it also produces . . . liver tumours![72]

While few companies, to-day, are prepared to make the protracted tests that finally revealed the toxic effects of Dulcin, the use of toxic, 'near' toxic, 'probably' toxic, and toxic but 'probably' harmless to man, and toxic but 'harmless' chemicals (all of these categories are frequently established in food chemistry) can be multiplied almost indefinitely. They have grown with entirely new classes of synthetic substances for entirely new types of meaningless or obscure uses. Alkyl aryl sulfanates are 'wetting agents', the toxicity and side effects of which 'require careful study' according to the Food and Drug Administration. But what, if you please, is a 'wetting agent'? Is the public familiar with its function or its need? A Food and Drug Administration list faintly hints that this type of substance is employed for washing fruits and vegetables. Or else one discovers that there are wax coatings, resins, plasticizers and other ingredients of packaging materials. Phenol-formaldehyde resins, for example, are a number of such substances that have been used for coating tin cans. Some of these resins are explicitly regarded by the Food and Drug Administration as deleterious; others are believed to be 'relatively' safe. The hazards to the consumer depend upon 'whether the material would be transferred to the foods with which it might come in contact either by direct solution or leaching, volatilization, abrasion, or other methods'.[73] The problems, in short, are legion and the possibilities for endangering the public health depend not only upon primary or secondary effects, but reach back into tertiary stages of nutrition. They grow with a one-sided over-complication of society, with a distortion of man's relationship to natural forces and his bodily needs.

[71] Hearings, 1950, p. 384.
[72] Hearings, 1950, pp. 384-385.
[73] Hearings, 1950, p. 74.

Chemicals, Disease and Society

Within recent years, the rise of little known and even unknown infectious diseases, the increase of degenerative illnesses and, finally, the high incidence of cancer suggests some connection between the growing use of chemicals in food and human diseases. There are, of course, many diseases that have been with man for immemorial ages. Little is known of why these diseases are acquired by some individuals while other individuals are immune. Investigation is slowly (and all too slowly) moving toward the study of immunity, of resistance factors which depend partly upon heredity but also upon the level of nutrition. Now, chemicals in food products may well play a very important rôle in these problems. Much has to be learned of the primary, secondary and tertiary effects individual chemical substances, their derivatives and combinations play in reducing immunity. Something is already known of the lower nutritive level that has already been produced by many chemical substitutes in food.

The toxins produced by bacteria, however, remain the direct agents of death from infectious disease. In this connection, an entirely new field of research is being opened. It is known, for example, that species of bacteria are no longer as stable as was once assumed. Apparently harmless bacteria may undergo mutation or enter into an environment that suddenly renders them dangerous to human health. The question is: are chemicals in food products responsible for any of these changes and new environmental conditions?

In testimony before the Select Committee, Dr. Bing raised some considerations along this line. 'The incidence of many diseases is changing,' he said. 'There is an increase in the morbidity and mortality from a number of diseases. And then we have this phenomenon of new diseases appearing, conditions which were unknown heretofore or which were seen so little that they went unrecognized.

'The increase in incidence — and, well, man is heir not only to old diseases, but he acquires some new ones from time to time. Whenever that occurs we naturally suspect a change in the environment.

'Now, foods are part of the environment of the human being, and some alterations in foods are suspect or some alterations in drugs that may be given are always suspect."[4]

Dr. Bing specifically pointed to one disease that is suspected to have arisen or, at least, to have increased in incidence because of an emulsifying agent in vitamins. 'There is this condition of retrolental fibroplasia of babies born prematurely. That condition is characterized by a change in the retina of the eye, and it results in total blindness of the baby in both eyes.

'That condition was either not known or was observed so occasionally that it was not recognized, by and large, up until about 1941, and then the incidence of it increased so that from 30 to 40 per cent. of the prematurely born babies in some nurseries, some hospitals, had this condition and became blind.

'Now, the medical investigators looking into that have cast suspicion on the use of synthetic emulsifying agents present in a vitamin preparation which was administered to the new-born babies. They are not sure that it was the emulsifying agent or not, but they have called attention to the fact

[4] Hearings, 1950, pp. 62-63.

that when they changed from the vitamin preparation containing this synthetic emulsifying agent to the same vitamins without that particular material, the incidence went from 30 to 40 per cent. blindness down to less than 1 per cent."[75]

It is widely agreed that the tempo and insecurity of American social life is a vital factor in the increase of degenerative diseases like heart and circulatory illnesses. But very little attention has been given to the rôle of chemicals in food. This problem is especially complex because much has to be learned about the way the body absorbs and uses calcium and magnesium salts — in addition to many other substances that make for over-all health. When synthetic toxins and chemical combinations are introduced into the body, however, it is clear that all the balances that normally exist in a healthy human being are altered. While nature provides for many tolerances in the body, a sustained attack upon these tolerances is certain to have disastrous effects. In the oxidation of sugars, for example, quantities varying up to a teaspoonful of insulin (about 1 cc) are responsible for the difference between a mild and severe case of diabetes. Consider then, what it means when chemicals are introduced that violate these — and even more slender — tolerances day after day and year after year. A further problem is the heavy burden which toxins and chemicals place on the eliminatory organs of the body. Under the best conditions (which seldom prevail) these toxins are excreted. Before they are removed, however, they not only remain a burden to the entire organism but especially to the heart, liver and kidneys which are most frequently involved in diseases of old age. In short, it is still to be determined how a chemical in food 'behaves in the body, how it is handled in the alimentary tract; whether it is digested and absorbed; and, if absorbed, where it goes. Is it handled by the liver, the great chemical organ of the body, and converted to something else, and then eliminated or does it pile up in the tissues or go to the kidneys, where many soluble substances are channelled in order to be excreted? Does it have any effect on any of the organs of the body?"[76] Dr. Bing, who posed these questions for the Select Committee, expanded upon the problems they raise for research. 'We now know that there are some poisons which will kill an animal without causing any demonstrable pathology or change in the structure of the cells. Cyanides can combine with the blood pigment and prevent taking in oxygen from the air. And then there are certain organic synthetic compounds which react with substances in the body called enzymes, and can cause sudden death in experimental animals without giving any clue to any pathologist who may make sections of all the tissues of the body and look for changes in the cell structure."[77] The very multitude of questions that can be raised around chemicals in food provides the essential setting for an answer. In so delicate an arrangement as the human body, it can be asserted that many synthetic chemicals probably play a sweeping rôle in diseases that are due to changes in human physiology — in the 'degenerative' illnesses.

Perhaps the most remarkable data thus far on the rôle of chemicals in disease has been accumulated on cancer. This data has been supplied from

[75] Hearings, 1950, p. 63.
[76] Hearings, 1950, p. 42.
[77] Hearings, 1950, p. 43.

two aspects of research: the known properties of many chemicals in causing cancer (carcinogens) and the characteristics of malignant growth. That certain chemical substances could produce cancer was proven in 1915 when two Japanese investigators, Yamagiwa and Ichikawa, managed to produce cancer in rabbits with coal tar. Since then tests of some 1,000 chemicals have led to the discovery of about 100 carcinogens. Some of these chemicals like 9, 10-dimethyl-1, 2-benezathracine require only three applications to the skin to lead to cancer in a few months. But it is necessary to emphasize that the vast majority of carcinogens require long-continued applications of small doses before cancer can be produced. Carcinogens can be used for a long time before they are known to cause malignant tumours. As a result of investigations by Goldblatt, for example, the 'interval between the first exposure of workmen to cancer-producing compounds and the appearance of symptoms of the disease was eleven to sixteen years in 54 per cent. of the cases. It was twenty to forty-eight years in 19 per cent. The shortest period exposure sufficient to cause cancer was 3.5 years and the longest thirty-three years.'[78] A carcinogen may thus be used as a chemical in food without lending itself to any assured means of discovery — perhaps not only for many years but even at all.

Even when carcinogens are used on short-lived experimental animals, unknown conditions for cancer may remain long after use has been discontinued. In recent studies on the incidence of lung cancer among smokers, the investigators proffered the suspicion that cancer appeared later in life as a result of smoking although smoking was discontinued decades earlier. A new term (cocarcinogens) has been established for chemicals that 'will not produce cancer when administered alone, but will enhance the cancer-producing power of other chemicals. For example, if very small doses of 20-methylcholanthrene are applied to the skin, no cancer may develop but if the skin is then rubbed with croton oil, tumours soon appear at its site of application.

'These small doses of the carcinogens will not produce cancer, but when the small doses of carcinogen is followed by the croton oil, then a tumour appears.

'The croton oil can be applied several months after the cancer-producing chemical has been administered. Simultaneous application is not necessary.'[79]

The effects of carcinogens and cocarcinogens, therefore, prove to have an extremely complex background. Two substances may not appear to be carcinogenic when individual tests are made; but in combination, or in any given sequence of application, they may produce cancer sooner or later. Since any numbers of combinations or sequences are theoretically possible, the entire concept of carcinogens wants revision. As long as synthetic chemicals are used in food, the human body comes to resemble a chemical factory in which incalculable combinations of toxins and carcinogens are possible at any stage of life. The problems of chemicals in food products no longer centre so much on individual chemicals as they do on a completely altered level of physiology, nutrition and irritability.

The fact that cancer can derive from the mistreatment of the body as a whole is suggested from the standpoint of pathological as well as chemical

[78] Hearings, 1950, p. 640.
[79] Hearings, 1950, p. 640.

research especially in the work of Harry S. N. Greene at the Yale University Medical School.[80] In the course of transplanting tissue that was microscopically diagnosed as cancerous, Greene found that sometimes tissue could be transferred successfully to the eye of an alien species and at other times it could not. After further research, Greene came to the conclusion that many tumours which receive a diagnosis of cancer as a result of microscopic analysis were actually benign. Only the malignant tumours could be transferred. These facts led to several lines of speculation. Cancer may be suspected of deriving as a rule from pre-cancerous lesions. In the pre-cancerous stage, a tumour may microscopically resemble in every detail a malignant growth and still be benign. Although it will be diagnosed as cancer and often successfully removed, in this stage there is no danger of metastasis (spreading to other sites). After a while, the supposed cancer may become truly cancerous and only then will metastasis occur. What causes the change in behaviour? Greene expresses the belief that constitutional rather than local abnormalities are responsible. Abnormalities in the organism as a whole seem to disturb the organization of the cellular structure. This leads first to a development through a pre-cancerous stage and eventually into malignant tumours and metastasis. Greene's view, of course, does not necessarily challenge the local view of cancer; as, for example, when tissue is rendered cancerous by continual irritation. Rather, Greene also seems to open a more general source of disturbance. His view implicitly challenges the entire environment of man.

Among the most direct factors of man's environment to-day that make for constitutional abnormalities are the tempo and insecurity of existence and the wholesale alteration of diet by the use of chemicals in food products. The former has given rise to nervous disorders on a vast scale. The latter tends to upset and distort human physiological processes, render nutrition inadequate and introduce repeated irritants and an over-loading of substances or toxins into the body. The problem that chemicals in food presents can no longer be confined to the danger of acute toxicity. Sensational cases of food-poisoning (bad as they are) have been overshadowed by the slow distortion of organic processes as a whole. Broad issues in ecology, chemistry and physiology are being raised — not simply local instances of acute toxicity which supplied most of the attacks and legislation against the food industry in the past. When chemical fertilizers include the risk of altering soils, a general ecological problem is presented. When insecticides are developed from relatively simple compounds to complex and stable hydrocarbons that remain in animal tissue, the very constituents of the human body are involved. Finally, when innumerable types of chemical substances are introduced into the absorptive, physiological and metabolic processes of the body, the whole cycle of nutrition, growth, organic development and the normal tempo of physical degeneration in the course of life is changed adversely.

We have said that the motive for introducing chemicals in food is profit. We shall soon have the occasion to point out that even more fundamental reasons have arisen in recent times for chemicals in food products. But for the present this motive continues to operate and extend itself, and it has

[80] Cf. 'On the Development of Cancer,' by Harry S. N. Greene, *Scientific American*, December, 1948, pp. 40-43.

led to an increasing and reckless marketing of the public health. Just as the profit-system introduces more and more irrational uses of man's productive forces, so the problems raised by chemicals in food are met with totally irrational 'solutions'. Perhaps the most absurd illustration is the story of 'enriched' bread. To-day, the housewife is likely to encounter explosive advertising notices on bread that is 'enriched' with vitamins and other substances. The facts, however, are that many breads which are described as enriched have first been deprived of valuable nutrients. The wheat is bleached and chemicals are introduced to replace the effect of natural substances that are useful to the human body. This approach to nutrition — if such it can be called — is in itself so perfectly irrational and wasteful that it would defy any rational mind if it was any worse than many irrationalities to-day.

Many individuals who do not pretend to an expert knowledge of food or agriculture see in chemicals an assertion of man's power over nature, a substitute for vital natural products and human labour. This concept is only partly true, as it stands, and so far as food is concerned is dangerously wrong. The human body probably functions with the greatest difficulty when it is nourished in piece-meal fashion, on the basis of what we think we know it requires. There are many important things we do not know or for which there are certainly no synthetic substitutes. Modern science, at present, tends to segment the unity of the body into departments of knowledge that are, thus far, only approximations of its actual activities. These departments — physiology, morphology and so on — do not completely open to us the complex, organic facts and relations that actually exist in the organism. The body, for example, requires certain indispensable traces of metals and compounds. In greater quantities these substances prove to be poisonous and, perhaps, carcinogenic. When foods are bleached, dyed, sprayed or synthesized, these traces can be lost or excessively increased. Sometimes, the chemist and physiologist has only a faint idea — if at all — of what is required. Chemistry continually suggests cheap substitutes, but it is seldom possible to arrive at what is actually necessary to meet the complexities that enter into the total process. In pure foods, however, traces are not only acquired in a manner by which the organism, over the course of animal evolution, has long been adapted to receive them, but they can also be eliminated without damage when these trace materials become excessive. The chemist, on the other hand, may synthesize compounds which the body is compelled to receive because these compounds obey the general laws of chemistry more closely than the chemical processes of life. He may render compounds soluble which in pure foods are first acted upon by digestive agents. Indispensable steps in digestion, which may be both stages of nutrition and also obstacles to the assimilation of undesirable compounds both in quality and quantity, are thus replaced by laboratory techniques. Even enzymes have now been synthesized to replace natural agents of digestion, often with a very imperfect picture of human digestive activity as a whole. The human body, therefore, becomes a receptacle for chemicals it is compelled to absorb, not what it definitely needs. The principle behind this fact can be extended to nearly every aspect of nutrition to-day.

The modern concept of 'power over nature' is a similar distortion. For

centuries, great thinkers had seen in man's control of natural agencies the key to man's access to leisure, intellectual and spiritual development, and freedom. They did not see in this control an end in itself, but an end to suit man. Moreover, 'control' did not signify *violation*. It referred to a conscious turning of nature to meet human needs, as these needs arose from a rational body of social relationships rather than an irrational society. 'Control of nature' was founded upon the belief that nature had its own complex laws and that man could produce a society founded upon reason.

At present, the 'conquest' of nature is predicated partly upon a control of forces to conquer the human organism. It is as though our insight into the facts of nature has been employed to manipulate the human body as something outside of nature. Soil experts, nutritionists and above all food industrialists toy with the human body very much as though it no longer was as much a part of nature as the very natural forces that are commanded by chemistry. But the principal issue is that the 'conquest' of nature currently rests upon problems arising from social blindness and idiocy. By the misuse of chemistry, man is 'solving' social problems; problems that are related to social insight and intelligence rather than the physical and organic sciences. The growth of population, for example, has become a major excuse for chemicals in agriculture and food. Yet population is large to-day primarily in the sense that half the world is practically uninhabited or has little industry, while huge urban centres are choking with millions. Land is insufficient because it is misused and frequently ignored where it is actually available; worse, modern forms of land tenure have driven millions off the land, often into useless occupations. Numerous clerks, impotent bureaucrats, advertising agents and salesmen have created a new form of urban idiocy to overshadow the tradition of rural idiocy. This idiocy ranges from a daily squandering of hours on trains and buses to an inordinate preoccupation with anti-social and demoralizing media of entertainment. Modern society resists the possibility of restoring human contacts that have been broken by tawdry 'entertainment', siphoned into the home by television and radio. Only recently has an increasing number of people begun to think of decentralizing the great urban menageries — and this because of a fear of modern warfare and bombing. Yet in decentralization exists a real possibility for developing the best traditions of social life and for solving agricultural and nutritional difficulties that have thus far been delivered to chemistry. Most of the food problems of the world would be solved to-day by well-balanced and rounded communities, intelligently urbanized, well-equipped with industry and with easy access to the land.

There is a logic to every situation in modern society. With the rise of huge cities, with a meaningless increase in detail labour, with the total supplanting of quality by quantity production — pure foods have not only been rendered unprofitable but also impossible if only because of transport conditions. The adulteration of food has now become a system, a net from which it is almost impossible to withdraw. Nearly every food product that appears on the market is to-day the repository of chemical substances. Years ago, this trend was ineffectively challenged by various 'fad' movements. Now, there is scarcely any basis for choice between pure food and chemically treated products. The door has been closed to indivi-

dual selection, and the process of adding synthetic substances proceeds unabated. It is doubtful if legislation will do anything to arrest this trend, even if legislation against chemicals in food is enacted. The problem has become a social problem — an issue concerning the misuse of industry as a whole. It is on this basis alone that it can be solved.

December, 1951.

Joseph Ramai

THE CRISIS OF EUROPE

IT is more than a year since the Korean War first made its vulgar intrusion upon history. Among its major achievements, beside the destruction of a people having had not the remotest interest in the cause of any of the warring powers, has been the profanation of the very concept of war. To-day, war has become the expression of *interests in common* rather than opposed. As long as this identity of interests persists the war continues; although it is necessary at one point to call the war 'truce' since the ordinary intelligence operating under the old idea expects an end, and thus has not adapted itself to the permanent nature of the new type of war. This cultural lag, as it were, also requires that the really congenial powers cast themselves in the traditional guise of mortal enemies. Cursing the atavistic propensities of the ordinary intelligence, they must set about accusing one another of 'aggressions', they must provoke 'incidents', 'violations' — this house not suitable enough for negotiations, this soldier farting in the presence of *that* general, and so on. Indeed, if there still are those who idealize the purgative values of pure violence, they must mourn the passage of 'the good fight'. War-truce has been debased and humiliated, made subservient to a thousand other considerations.

There is another disagreeable aspect to the cultural lag just mentioned. Many people still have that musty, nineteenth century impression that there is still room enough for everyone on this earth. If the true meaning of the Korea war-truce constitutes some sort of eviction notice, it is a tribute to the compassionate sensitivity of the rulers of the world that they have given as little publicity as possible to it. They have most diligently hidden the real issues behind towering headlines which announce the latest limited offensive or withdrawal. In this respect the Korean fighting ranks with the first and second World Wars in the high degree to which its official interpreters have attempted to obscure the meaning of both the war as well as the most important developments corresponding to it. This century has witnessed an intensification of the policy of diplomatic secrecy and withholding or distorting statistics, accompanied by a deafening barrage of propaganda precisely because an economy in decline can ill-afford to tell the truth.

Having enjoyed in the past a higher standard of living than most other people, it is understandable that the people of industrial Europe would be most prone to lean upon the nineteenth century illusions. Of course, the second World War had sobered them a bit — even more so the aftermath.[1] There was a brief respite when the West European economy experienced an exhilaration at the beginning of the Korean war. The shift to war production, particularly on the part of the United States with its decisive economic weight, promised to wipe out unmarketable surpluses and place heavy demands for goods on all producing countries. There would be a sellers' market which would make it possible for nations to overcome dollar shortages and restore more favourable trade balances. Domestically, unemployment would be liquidated and thus conditions for social stability assured.

The fragile 'prosperity' which actually ensued did witness what one may call either a revival or, more accurately, a last gasp. On the basis of war production, Germany managed to reach and surpass its 1938 level of output. Britain was able to announce that for the month of October, 1950, her exports had reached a post-war record and her adverse trade balance was the smallest since July, 1946. The position of the lesser developed countries of Asia improved similarly what with prices of industrial raw materials sky-rocketing to twice their pre-Korea averages.

To-day, the promise of rearmament appears to have fulfilled itself — with a vengeance! Surpluses have been liquidated so successfully that the Western powers are plagued with shortages. The scramble for raw materials has brought in its wake the unleashing of inflationary pressures that have sealed the fate of European recovery. It is estimated that Europe as a whole will have to pay in 1951 about $3,000,000,000 more to obtain even the same volume of imports it received in 1950, given the prices that existed at the beginning of the year. In all probability there will be further increases in both the prices and the volume of imports. The worsening terms of trade of the Western European countries are described in a recent *Monthly Review of the Federal Reserve Board of N.Y.*:

'Gradually rising export prices — resulting from higher import prices and other inflationary forces — would undoubtedly cover part of the import bill. But, barring some unexpectedly sharp decline in raw materials prices a substantial expansion in export volume will be needed if Europe's trade deficit with the rest of the world is not to rise significantly in the near future.

'Since such expansion seems unlikely, a deterioration in Europe's trade position — even apart from military-end goods — appears probable.'

Exactly why the traditionally 'optimistic' financial circles make such a gloomy prediction will be treated later on. Suffice it to say, that with trade deficits mounting Europe is ending up exactly where she was when the Korean war began, albeit on the reverse side of the coin — i.e., the deficit is derived from 'shortages', not 'surpluses'.

Great Britain offers an excellent example of having had her economy travel full circle if only because her relatively favourable position suggests

[1] A French saying has it: 'Never mind a Third World War, God spare us another liberation!'

how much more difficult it is for less fortunate nations.[2] The British government had released its stocks of raw materials to industry before devaluation in the hope of cashing in on exports when the currency change would be put into effect. The buyers' market which prevailed in world raw materials at that time was enough indication to the British planners that they were not putting their country's supplies in jeopardy. Devaluation, which increased the prices of imports, tended to further inhibit the stockpiling activities of the British government. This is the reason why it had responded slowly to the post-Korea price rises, having initiated its offers to purchase additional raw materials in August, 1950. By November the government purchasers had reported failure. They had been beaten to the draw by the Americans.

On 16th April, 1951, Harold Wilson, President of the Board of Trade, commented on the severity of the sulphur shortage in Britain. He told the House of Commons that unless the United States was more generous in its allocations rayon production would have to be cut by 40 per cent. This would be 'an unparalleled industrial disaster' for Britain and would affect adversely not only domestic consumption and the export trade but the nation's rearmament effort as well. He also gave notice of other shortages afflicting the British economy. Lancashire was going short of cotton and shortages of molybdenum, tungsten, nickel, copper, and zinc were becoming more acute.

Similar tidings for steel were brought forth on 30th April, by Supply Minister George Strauss, who said that some steel furnaces had already been closed or damped down. The steel industry had drawn from its reserve stocks material equivalent to 1,000,000 tons of steel ingot production in the past six months and could not draw any more from that source which had been reduced dangerously low. He explained that the shortage had loomed up because German scrap iron, of which 1,900,000 tons had been imported in 1950, had become extremely difficult to get. As a result, it is estimated that the decline in British steel production might be somewhat more than 1,000,000 tons.

On 1st March, 1951, the Chancellor of the Exchequer forecast a recession in Britain's overseas trade and an increase in the country's dollar deficit.[3]

[2] 'Britain's more favourable economic situation in 1950 could largely be traced to its rôle as repository of sterling area reserves. . . . Thus the strengthened dollar and gold situation of Britain was pictured as deriving primarily from increased exports by other sterling countries to the United States.' (N.Y. *Times*, 20.2.51.)

[3] To round out the picture, we present the following summary to be found in the N.Y. *Times* of 30.6.51:

'Britain's gold reserves so painfully restored last year by means of devaluation and an export drive at the expense of home consumption will show some depletion when the figures are released next week.

'Although British industrial production is up by 5 per cent. over last year the excess of imports over exports for the first five months of this year is £404 million. In the whole of last year the unfavourable trade balance amounted to only £348 million. . . .

'About the only effective measure that the government can take is to try to increase the export of textile, leather, and hardware, for the rearmament programme leaves little margin for increasing exports of such things as automobiles and other manufactured metal goods.

'It is the continued trend of the things Britain has to import to rise in price at a pace far greater than the prices of the things she exports that has the government worried.

'In the first five months of this year British imports were only 9 per cent. greater in volume than in 1950 but their cost was 42 per cent. higher. There is

He asserted that the Government had studied the expansion that would be necessary in face of defence orders and higher import prices to maintain the 1950 surplus in the country's balance of payments, and had concluded that it was beyond Britain's powers.

What for Great Britain was a prediction was an accomplished fact in Western Germany. As early as November, 1950, the Germans had exhausted their $320,000,000 credit with the European Payments Union. The $180,000,000 emergency credit extension which was granted them then, and which was supposed to last until June, 1952, had been almost entirely consumed by February, 1951! The extraordinary rate at which the German deficit had accumulated is also attributed to the need to buy additional raw materials at prices far exceeding those of her exports. Since the E.C.A. had refused to finance any further the German deficit, it could only recommend that the Bonn Government increase taxation and control domestic credit so as to restrict purchasing power and reduce 'unnecessary' imports.

Equally spectacular has been the economic decline of France, whose Korea 'boom' was so ephemeral as to preclude use of the word. From a deficit of 25 billion francs in March, 1950, (which was lowest for the year) she rose to a surplus of one billion in July and September, and 8.5 billion in October. By November, the surplus tapered off to 4 billion and it was clear that France's flirtation with prosperity was over. 1951 opened with a January deficit of 12.6 billion and was followed by February with 12.7, March with 13.5, April with 16.5, May with 35.6 (!) and June with 32.5. Korea evoked nothing more than a disconsolate belch from the French. The figures are all the more remarkable when one is made aware that exports had maintained themselves and had even risen from 70 billion francs in January, 1951, to 85.2 billion in February, March, April, and June. Of course, here too, the increase in both the weight and value of imports especially on account of rising international price levels is the aggravating factor. Imports since the beginning of 1951 in billions of francs are given as follows: January, 83.4; February, 90; March, 94.5; April, 104.2; May, 111.9; and June, 117.7 (N.Y. *Times,* 16th July, 1951). French experts, apparently bursting with pride, were said to have been pleased with the increase in imports even though it is ruining their economy. They hold that France is behind in supplies because like the saintly British she failed to join in the rush for raw materials as so many did, paying any price and thus increasing the general disorder and, like Germany, creating difficulties for the European Payments Union!

Needless to say, the smaller European countries are in the most dismal straits. Lacking a substantial base and without colonial empires the exploitation of which could cushion somewhat the impact of world rearmament, their capacity for survival is much more limited than that of England, Germany, and France.[4]

[4] '. . . Denmark, Norway, Austria, and the Netherlands are still wrestling with the same old problems that faced all Europe in 1947. They are not within sight of little sign of any general break in world prices although some commodities are slightly cheaper.'

We will only add to this that although Britain always had an unfavourable trade balance *in commodities,* to-day her deficits are uncompensated by her former huge invisible exports which have been wiped out.

A description of the European crisis is incomplete without mention of its effect upon the quality of human life. The European standard of living is further deteriorating under the oppressive burdens of the arms budget (France having the largest, amounting to 11 per cent. of her gross national product) and the enervating effects of inflation which turns currency into mere paper. George Bernard Shaw in his grave will be pleased to know that what with the rising cost of food imports his people are at last upon the royal road to vegetarianism. Some will find the way difficult and hard to discern since the government seems intent upon depriving people of free spectacles. Others will find the journey futile since dentures seem to be going the way of the spectacles. If housewives are grumbling now, what will they articulate next year when production can at the very best be expanded by £100 million with £300 million going for armaments — meaning a cut of £200 million more in civilian production?

Witty French officials far from grumbling are coming through in an exemplary manner. They have established a functional correlation that at once represents the height of scientific achievement as well as philosophical detachment. The following dispatch appeared in the New York *Times* of 8th September, 1951:

> PARIS.—The French are eating less and living longer, according to the National Institute of Statistics and Economic Studies, which reported to-day that the average Frenchman consumes about 33 lb. of sugar a year compared with 53 lb. before World War II.
>
> He also consumes less meat, grain products, fats and potatoes. Only of fruits and vegetables does he eat more than in the pre-war period.
>
> The institute figures that the average Briton with his tiny meat ration, eats more meat — 132 lb. — than the Frenchman, with 99 lb.
>
> France, however, is one of the countries in which people live longest — the average is nearly seventy years [!].

The merits of this consolation are too numerous to mention. When Frenchmen are dead of starvation their ghosts will undoubtedly discover (and the E.C.A. will gladly supply the facts) that their industrial production had soared to unprecedented levels![5]

[5] If the French statisticians are not terribly disturbed over the falling standard of living, there are some statisticians who are. On 5th September, 1951, a memorandum originally intended for official ECA consumption came to light in the wake of the U.S. Senate's recent action cutting the Administration's request for

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a dollar balance. The structural changes in their economies caused by war have not been overcome or rendered harmless.

'To take only the case of the Netherlands, nothing has happened to make up for the loss of up to one fifth of her national income that used to be derived from her close relations with Indonesia. But, as the head of the Economic Co-operation Administration in the Netherlands told this correspondent in 1948, unless that loss were somehow made up the Netherlands could not be made to function without outside aid or internal adjustments so severe that it was doubtful they could be made peaceably. . . .

'Europeans realize that the United States Government is under great pressure to shift the basis of aid from economic need to military contributions, . . . But if important regions of Europe are to slide back into desperate economic straits just because they are small and cannot contribute impressively to Western rearmament, no good will come of it for the United States or the West in general, in the European view.' (N.Y. *Times*, 12.4.51.)

Now that the general features of the European crisis have been drawn the question arises as to whether it is merely temporary, i.e., contingent upon difficulties that will in time be overcome, or whether the downward trend is the necessary and permanent result of pressures indigenous to European society as it is presently organized?

One answer is supplied that will no doubt immediately convince hundreds of more stoical European statesmen. It is given with typical American sophistication by Milton Katz, head of the European staff of the E.C.A. Referring to the economic survey of 1951 and to similar surveys of previous years put out by the European Economic Commission for Europe, Mr. Katz said:

'Its authors have consistently erred on the pessimistic side.'

The New York *Times* of 9th June, 1951, goes on to say that Mr. Katz compared each edition to the old movie serials in which the hero is nearly dead at the end of each instalment, only to rise to new heights of achievement in the next!

Naturally, the answer to Europe's problems is the importation of thousands of American films from which so much can be learned! There are, however, good reasons to distrust the opinions of Hopalong Cassidy fans. Instead an answer will be supplied that is in line with the second alternative and requires at least some mental effort to produce. Involved are the serious considerations that account for not only the crisis of Europe but that of the entire world.

II

At the same time that rearmament is under the vigorous and insistent sponsorship of the United States, it must not be thought that the shift to war production is a response to pressures which only that country has faced. To-day, the impossibility of peacetime production is characteristic of the entire capitalist world and is the natural end point of the competitive process by which it arose. Thanks to the intervention of the state, the symptom of this impasse, overproduction, appears in a muted form but is nevertheless clearly discernible. What was in the period of decentralized capitalism only accidental and due to the 'anarchy of production' is to-day chronic and due to the 'organization' of production. The tendency toward overproduction has been abetted by the formation of huge, government-assisted, industrial combines whose monopolistic policies so effectively exclude one another from internal and external markets and access to raw

economic assistance to Western Europe from $1,650,000,000 to $880,500,000. It states:

'The Korean War has produced in all European countries a rapid rise in the cost of living. . . . In many cases also, only the more strongly organized labour groups achieved wage gains which never completely absorbed the increase in the cost of living. . . . The situation is likely to worsen in the immediate future. In almost all industrialized countries of Western Europe production has fallen as against corresponding months of the previous year. The shortage of raw materials, particularly coal, is responsible for this event.

'As a result there will be less goods available for consumption and price rises will be inevitable. . . . As a consequence artificially pent up demands of labour for higher wages will be felt with particular force. . . .'

The memorandum concludes that continued economic aid for 'Western Europe' is 'of extreme urgency for the security of [guess who] the United States'.

materials that it is not long before the weaker competitors, after having exhausted the markets under their control, find that they have more goods on hand than can be profitably sold. It is not long before all markets approach a state of saturation, at which point governments are summoned to bolster sagging industries and to fight wars to eliminate competitive obstacles. It should not be difficult to understand, therefore, why it is that capitalism in the present period requires only five years after its last orgy of destruction to show that it is in need of another.

This baleful perspective is derived concretely from the final lesson taught by the recession of 1949 that it was impossible for the Western world to expand production and at the same time avoid commodity 'surpluses', falling prices, and unemployment. Hardly a tribute to Europe's economic vitality, it was an indication that even partial recovery was too much for what a steadily contracting economy could bear. Despite the unevenness of her post-war economic development and the limits imposed upon it by the United States, Western Europe had soon reached the point where her own industrial machine began to render the Marshall Plan superfluous in certain areas. What had been used as a means to dump abroad what the American home market could not absorb and thus to maintain both American as well as European stability now revealed itself as a double-edged sword. The Europeans could not proceed toward economic independence without trying to reduce dollar deficits by cutting American imports and using every device, of which devaluation was the most outstanding, to penetrate each other's markets and those of the United States. By the end of 1949 there had accumulated behind the walls of import quotas, tariffs and inconvertible currencies which each nation had erected for its own protection, unmarketable surpluses in coal, steel, oil and agricultural products.[6]

Under a more pristine form of capitalism this development, if allowed to take its course, would have ended in a depression. However, since the thirties the centralization of economic power in the hands of the state has made possible another alternative. War production emerges as the only means by which the state can prevent economic stagnation and social collapse. This is accompanied by (1) replacing an unreliable consumer demand, (2) absorbing commodity surpluses, (3) stabilizing prices and wages so as to insure profits and (4) diverting the unemployed into the armed forces. Here is the essential meaning of rearmament efforts in the past quarter of a century although every effort is made to disguise it with ideological trappings.

Although war production can keep industry going, instead of resolving the contradictions of capitalist production, it only raises other and equally urgent problems. The entire burden of maintaining the system passes directly on to the people since the state can subsidize war industry and stabilize inflated currency only by increased taxation and coercion. The extent to which each nation can rearm depends upon how far it can depress the standard of living without risking social instability. Russia and Nazi Germany illustrate how it was possible for totalitarianism to stifle resistance and make the transition to a war economy easier. However, Western Europe's political life to-day is still relatively democratic, and considering the low standard of living now prevailing in that area, its capacity to rearm

[6] See *Contemporary Issues*, Vol. 2, No. 8, Spring, 1951, pp. 259-265.

and at the same time maintain its current political forms is seriously limited. Here lies the crux of the problem: *Capitalist* Europe's dilemma consists of requiring a war economy and lacking the political structure for it.

It is in this light that Western Europe's reluctance to rearm and the ensuing conflicts with the U.S. are to be understood. As a result of the latter's unmatched productivity and hegemony in the world her population has enjoyed a standard of living which it is possible to reduce without incurring grave social disturbances. The United States has much more leeway to endure rearmament than Western Europe has. The European nations must search desperately for ways in which to retain and extend what is left of traditional consumers' production. At the same time that rearmament appears as a universal necessity economic nationalism and the competition for markets are intensified with state power mobilizing every resource to throw into the struggle.

* * *

The present governments of Western Europe are believers in great traditions, notably those established by the Carthaginian, Hundred Years', and Thirty Years' Wars. When mutually threatened with destruction they lustily proceed to tear each other to pieces. So long as these governments are in power the tenacity with which ancestral ways are kept will in all probability not relax, not even with the advent of rigor mortis. Thus, in trade France and Britain set about to hold down Germany (co-operation is not yet dead!) and in tariffs they all hold each other down. America, of course, has the wildest time of all!

There are times, however, when even the most enlightened traditions such as those the Europeans are now contemplating can be of no avail. The frantic cry 'Export or die' has been sounded again despite the fact that it has been the mutual blocking of the world market that is responsible for Western Europe's current distress.[1] The dismay with which manufacturers all over the world greeted the Japanese Peace Pact provides eloquent testimony to the world market's inability to tolerate new competition.[2]

[1] The most recent utterance of this glorious motto of our era has been made by the Indonesians. Their first rather intemperate retort to the ban on goods to 'Communist' China (which was later retracted, under American civilizatory pressure) was: 'We will sell to the Devil if necessary!'

[2] Despite the crippling provisions of the Peace Pact — the reparations still to be paid; that Japan is forced to grant most-favoured-nation treatment to all countries whereas the latter need not all reciprocate — the Japanese pose as an important threat. What with the loss of her imperial markets and sources of supply, the compulsions for Japanese expansion are quite obvious.

Even two years ago the British, in a generous mood, sent a cotton mission to Japan for the purpose of trying to persuade spinners there to voluntarily curtail their rehabilitation in exchange for a promise to help with commercial agreements in other lines!

More recently the signing of the Peace Treaty occasioned sharp demands from American dish and glassware manufacturers for protection. Japanese exports of dinnerware to the U.S. had jumped from an annual average of $3 million for 1936-38 to $8 million for 1950. In miniature electric bulbs used for Christmas trees and toy trains Japanese exports to the U.S. in 1947 totalled $1,200. In 1950 the export volume rose to $801,323! It is because Japanese items can be sold for as much as 50 per cent. less than comparable American products of the same quality that one department store executive said he was committed to heavy

Nevertheless, as the far-sighted European statesmen say: there is no alternative.

For Germany, the lack of alternatives is sharp indeed. It has forced her to play the game for all it is worth, not being able to afford the luxury of abiding by rules which her less imaginative 'allies' would have her uphold. The amazing speed by which Germany achieved her deficit with the European payments union (mentioned earlier) has been attributed to the use of tactics first employed under Hitler by Dr. Hjalmar Schacht. That clever man used Germany's foreign debts to force her exports. (Readers: I have been toying with the idea that Europe's problems would be solved if all nations simultaneously made use of the same trick!) Envious experts of other countries have voiced the suspicion that 'the Germans' lack of concern over their growing deficit was attributable to their belief that the burden could be passed on to United States or European creditors, or that a solution would be sought through an expansion of German exports at a time when the exporting capacities of other Western nations are being reduced by rearmament'. (N.Y. *Times,* 2.3.51.) Certainly to accept imports which other nations are dying to unload and then to smile sweetly and say that you can pay only with exports the acceptance of which those self-same nations are dying to avoid — this represents the nadir of irresponsibility! More, it is a betrayal of the 'United' Nations, the North Atlantic Pact, and surely the Organization for European Economic Co-operation!

Nevertheless, Germany has been equally resourceful in overcoming strictures against East-West trade imposed by the United States and Germany's other 'Allies'. The modest Germans claim that their trade with the East had risen from $413,000 in 1941 to $11,384,000 in 1950 with most of the increase being concentrated in the months *after* the outbreak of the Korean War. The U.S. High Commission puts the figure for 1950 at $160,863,000, with iron, steel, machinery, and chemicals accounting for more than half! But the surprise is yet to come. 'German sources have estimated the illicit trade in "strategic" and "prohibited" war potential items smuggled from West Germany to the East, amounted to four times

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purchases of Japanese glassware. The secretary of the American Glassware Association, Herman Dillingham, said that domestic glassware manufacturers had not given up the fight to persuade the government to raise the tariff on Japanese products. This staunch defender of free enterprise said further: 'If they can outsell or outmerchandise us after the inequality of labour costs has been corrected, American glassware manufacturers would have no objection to Japanese competition.' (N.Y. *Times,* 10.9.51.)

The same demands have been raised by American sewing machine manufacturers. In the first four months of 1951 Japanese exports of sewing machines to the U.S. have increased 131 per cent. over a similar period the previous year. They are also retailing at 50 per cent. and less than similar American models. What is most annoying is that they are being put on the market labelled with well-known American trade marks such as Packard, Crosley, and Bendix! American sewing machine manufacturers put forward the same solution as their glassware colleagues, but with more gusto. They are not content to compete against tariff-raised Japanese prices; they frankly admit they would like to do away with Japanese imports altogether. (N.Y. *Times,* 9.9.51.)

European manufacturers! You have a great lesson to learn from the Japanese. Feed your workers on rice (unless to import it would further increase the trade deficit), house them in paper bags, put American trade marks on their products, and you will split the market wide open! — that is, if the tariffs don't get you.

more than the legal rate carried out under trade agreements and licenses authorized by the Western occupying forces [1]."

It seems that the Western world as a whole is not far behind. Data compiled by the Statistical Office of the United Nations show that in 1950 the East received 1.3 billion dollars in goods from the West. Again, much of the trade took place after the start of the Korean War — a perfectly grandiloquent expression of 'Cold War' morality! Britain in the first quarter of 1951 had been shipping rubber to Russia at three times the 1950 rate (from $1.6 million to $4.5 million) and Hong Kong, taking care of half of the West's shipments to China, sent in almost $250 million, almost double the value of such exports of the previous year. (N.Y. *Times,* 12th May and 10th June, 1951.)

Despite the fact that the sensational edge of these changes is dulled when it is considered that the figures (which reflect inflated prices) account for only a small proportion of Western Europe's total trade, all this was too much for the United States. After all, think of the hard work put in at Yalta gone to waste if the organic trade interdependence of agricultural East and industrial West Europe is restored! At the beginning of May, 1951, the United States took the first step toward correcting this abuse with the Korean War again proving its inestimable utility. A resolution was put forward at the U.N. calling for an arms embargo on China. But lo, and behold! The very nations who opposed from the first applying sanctions to the 'aggressor', *but who were now participating in the war,* gave the resolution a cold and critical reception. (Sorry, Mao, that we got into this bloody mess, but we will make up for it by keeping you well supplied.) As one stunned American senator put it: 'The fact that Great Britain has been sending war material to the Red Chinese through Hong Kong is to me a most outrageous procedure. These war materials are being used not only against Americans who are in Korea but against the British troops who are there.'

It appears, however, that the power of this argument was very limited. If the obtuse Europeans could not comprehend this level of morality, then perhaps they would respond to a higher level. On 21st May, 1951, the U.S. Senate attached a rider to a supplemental aid appropriations bill, known as the Kem Amendment, that would end economic assistance for all countries trading with the enemy. Mind you, not merely trading strategic goods but just plain 'trading with the enemy'. An official memorandum dealing with the implications of the amendment revealed that the scope of American action had widened in that the bill was intended to be applied on the basis of a 'certified list' prepared by the U.S. Defence Department covering hundreds of thousands of materials and articles — virtually anything that moves in foreign trade! A New York *Times* reporter, Felix Belair, Jr., made the astounding discovery that the only country left eligible to receive American aid was Yugoslavia (for obvious reasons)! 'The Kem Amendment,' he wrote, 'would cut off assistance to Iceland, where United States

[9] The extent to which the Bonn government is co-operating with the happy smugglers is revealed in the mildness with which it prosecutes violators. Mr. McCloy informed the U.S. Senate on 14th June, 1951, that there had been 20,000 to 30,000 prosecutions against alleged *import law violations* as against 38 (!) proceedings against export law violators.

troops are stationed, because that country sends a few hides to Russia. Assistance to Brazil and India for development of vital manganese deposits would be discontinued for similar reasons.' (N.Y. *Times,* 11.6.51.)

The response from Europe was immediate. As one official was reported to have whimpered: 'The action indicates that the Senate does not trust European governments. Why should the Senate assume that Europe is less anxious to keep down the Russian war potential than the United States?' (New York *Times,* 12.5.51.)[10] A German source in the Ruhr said: 'The economic ties of our trade are the last ones we have with the East. If they are cut we are leaving the East Germans in Russia's arms. You Americans must realize that no German can be happy about that for the final division of Germany between the East and West will surely follow.' (New York *Times,* 8.6.51.)

The Germans may take comfort in knowing that the U.S. government is also unhappy, albeit for the reverse reasons. The same memorandum mentioned above is more worried 'that the Kem amendment, by cutting off all assistance to Western Germany, would almost guarantee a tremendous expansion of trade with the Soviet bloc, of strategic goods which would otherwise have remained in Western Europe. . .,.' It is this reason that led President Truman to postpone the punitive provisions of the law. Nevertheless the threat of aid stoppage has been strong enough to induce the Europeans to make some effort to curtail trade with the East (or else to perfect further the methods of illegal shipping!). The extent to which Britain has banned rubber shipments to China represents a double victory for the United States. Not only is Britain rendered further dependent upon America, but the ban has reduced the price of rubber in Malaya to the point where the U.S. has resumed purchases of it.[11]

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The intensification of national rivalry is also evident in the matter of tariffs. By April, 1951, the World Tariff Conference which had been

[10] The rest of the dispatch is a masterpiece of understatement:

'Most Europeans will view the Senate action as a clear case of United States dictation as a condition for aid. This is something both European leaders and United States representatives have tried hard to persuade the Europeans never occurs. It is the kind of thing Communists have accused the United States for doing even when the United States was not doing it. . . .

'Finally, European economic officials are distressed by an action that seems to imply that the United States Senate is setting itself up as a better judge of potential gains and losses in trade than the people engaged in that trade. To threaten disruption of a country's whole defence programme . . . because it does not agree with the Senate's evaluation of the trade seems to the European like a highly emotional approach to the problem. . . .

'The Senate's action is only one aspect of recent United States policy that has strengthened European doubts about United States reliability as an ally in the long run [!].'

[11] This clever technique of stopping purchases till prices fall has been put to use elsewhere and reveals that the U.S. does not wait for the Europeans to provoke her into action. Recently she has undertaken the 'progressive' task of destroying the world tin cartel. By 8th June, 1951, the corruption-ridden Reconstruction Finance Corporation which is the sole U.S. importer of tin (somewhat of a cartel in itself!) had succeeded in knocking down the March, 1951, price of $1.82 per pound to $1.23. Apparently, the U.S. is repenting for the inflationary havoc she had wrought earlier. (Tin, by the way, was selling at $0.74 per pound just before Korea.) How was this accomplished?

'This country consumes about 50 per cent. of all the tin used in the world; and,

dragging on for months at Torquay, England, finally fizzled out with no significant positive achievements. However, on the negative side deeds of heroic proportions were accomplished — i.e., Great Britain managed to

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by withdrawing from the market was able to force the prices down sharply. . . . By using tin stocks on hand, the R.F.C. has been able to quote progressively lower prices to American users.

'The pressure exerted to drive down the price of tin is only one facet of a new "get tough" policy this country has planned to match the profiteering tactics of nations that supply vital raw materials to the United States. . . .

'Tin is only one of the commodities on which the Government feels it has been overcharged, but the tactics used to force prices down on the smelted metal are not considered practical in cases such as wool, rubber, and certain other basic essentials.

'Government officials are discussing what they consider a more effective plan under which this country would acquire exportable raw materials at the domestic price-fixed ceilings and act as sole exporter of the commodities. The Federal authorities would fix prices for foreign shipments at levels to match the quotations other nations permit their nationals to make on their exports, which are regarded here as exorbitant.

'At the moment, according to official word, Australia is under consideration for such treatment because of the manner in which the Commonwealth has permitted wool prices to rise from little more than $1 pre-Korea to more than $3 while we have needed wool in an acute degree for our defence programme.

' "Australia is entirely dependent upon the United States for sulphur, for cotton linters, certain types of wood pulp and for cottonseed oil," an influential Administration executive observed to-day. "We have been exporting sulphur at levels only fractionally higher than pre-Korea, and the quotations on cotton linters and other supplies have been similar to those which prevail domestically." If the Federal Government takes over the exporting of sulphur and other commodities, it was added, prices can be manipulated to the point where the profits realized by Australian wool growers at American expense can be balanced by the cost of imported American goods. . . . "We are entitled to hit back at those who seek to profiteer in this world crisis." ' (N.Y. *Times*, 9.6.51.)

Needless to say the price reductions will be enjoyed unilaterally by the U.S. It is also worth including the American reaction to complaints by tin producers. It is also a masterpiece!

'(Senator Johnson of Texas) quoted from an editorial in the *Straits Times* of Singapore, which said: "It is strange that Americans cannot appreciate the anguish of such primary producers as Malaya, whose whole economy will presently be at the mercy of those commodity stockpiles; what Malaya wants, both for rubber and tin is a reasonable prospect of a prosperous, stabilized future. Until there is some safeguard against a collapse in prices when stockpiling ends, Malaya owes America nothing."

'Senator Johnson said the sub-committee was "appalled at the threat" contained in that statement. "The parents and relatives of American boys who died fighting the Japanese in the Pacific so that Malaya, among other areas, would be set free from the Japanese conquest would find it difficult to understand that Malaya owes America nothing. There is a growing feeling in the United States that we are the only ones who are expected to sacrifice for defence against aggression. . . . Instead of expressing anger against those who threaten war and compel us to build a stockpile, the tin-mining companies express their resentment against the stockpile itself. No one can guarantee to any industry that if it expands for the common defence it may not have to contract should peace be secured again."

'Senator Johnson said that if the tin mining industry wished the United States to recognize its special problems "and to deal with them on the basis of their needs, they must be prepared to negotiate with the United States for reasonable prices based upon reasonable returns and in the light of full information as to costs. If, on the other hand, they wish to reject such an approach and to soak us for what the traffic will bear, the U.S. must be free to act in whatever manner will protect its own best interests. And those interests are not related to shabby dollar patriotism [!]" ' (N.Y. *Times*, 13.6.51.)

hold on to her imperial preferences![12] Here, too, the U.S. made herself conspicuous in a manner that must have brought nostalgia to many a British businessman. The nineteenth century tables had turned: now it was the U.S. that was booming forth the untarnished slogan of 'free trade' — although a trifle wary, shall we say, to take the first step.

Back in October, 1950, this is how things stood:

'Britain is understood to have proposed a long list of items on which concessions will be requested from the United States negotiating team. Normally this would not happen, because Britain and the United States completed a long tariff negotiation only three years ago at Geneva.

'However, Britain did not get much from the United States at Geneva. That was not because the United States was not prepared to bargain, but because Britain was not prepared to grant equivalent concessions, especially in the form of reductions in the margins of tariff preference granted and received by Britain in her relations with other members of the British Commonwealth.

'The Imperial preference system, as it is still called, has been the object of United States dislike and attack ever since 1931, when it took its present form. . . .

'Britain now is somewhat more interested in reductions in United States tariffs, price competition having become more important in recent years. But Britain is no more reconciled to giving up either the preferences British goods enjoy in the Commonwealth markets or the preferences Commonwealth goods enjoy in the British market.' (New York *Times*, 8.10.50.)

Six months later, on 30th March, 1951, it was reported that the United States was still not prepared to make tariff concessions on British goods without getting equivalent concessions. It was further suggested that 'in some cases the British could not grant a reduction in preferential margins because Australia, New Zealand, and South Africa would not agree [even outside of British pressure — J.R.] to give up the protected market in Britain that their industries have enjoyed since 1931.' (New York *Times*, 10.3.51.)

Why were the Commonwealth countries so reluctant to leave the sterling bloc? Perhaps the following proposed amendment from the U.S. Defence Production Act (typical of America's own protective policies) will provide a clue:

'Whenever priorities are established or allocations made with respect to any raw material, the President shall by proclamation prohibit the importation during the period such priorities or allocations are in effect of any article or product in the manufacture or production of which such raw material is used.' (!)

[12] 'The merest suggestion that preferences are to be discussed brings questions in Commons and wrathful articles in Lord Beaverbrook's newspapers, one of whose special interests is to defend the Imperial preference system.

'Lord Beaverbrook's *Daily Express* is the only British newspaper to keep a special correspondent at Torquay after the first couple of days of the conference. He has been informing the public that foreigners basking in luxury at tax-free prices are out to wreck the preference system. When this is denied on all sides, the *Daily Express* asks: "But what other purpose can this conference have?" and leaves the rest to the reader.' (N.Y. *Times*, 8.10.50.)

The admirable 'integrity' with which the U.S. emerged as 'free trader' is further emphatically illustrated by a move which took place *after* the Torquay conferences had broken down and *after* it was apparent that European terms of trade had so deteriorated that the European Marshall Plan Council was forced to postpone a decision that its member nations reduce import quotas (tariffs already being a dead issue). On 27th May, 1951, the International Monetary Fund (an American institution) informed its member nations that conditions had so improved that they would soon be *required* 'to eliminate or essentially modify exchange restrictions and other forms of discrimination against the trade of nations'.

This action also has its consolation. As Mr. Belair, Jr., of the New York *Times,* wrote: 'Because all members of the agency's executive board must approve the language of its public reports, the approach to exchange restrictions was not nearly so sharp as many of its permanent staff [Europeans, no doubt! — J.R.] would have preferred. In terms of economic diplomacy, however, the report was noted for its candour.' And what did the cherubic Americans say was responsible for retention of restrictive policies? 'Inertia, fear of the future, protection of vested economic interests from outside competition, and political bargaining practices, were given as the reasons why some member nations retained exchange restrictions. . . .' It must not be thought, however, that the Fund was unsympathetic to the current tribulations of the Europeans. Mr. Belair indicates that the fund anticipated in its report that many countries would argue that the maintenance of restrictive policies was necessary to protect their economies against the impact of the rearmament programmes. The Fund's reply breathed such wisdom that it blew down the very door to Eternal Truth itself!

'Historical experience indicates that greater efficiency or productivity in the economic field is encouraged by an international economic environment relatively free from hampering restrictions and discrimination.' (N.Y. *Times,* 28.5.51.)

* * *

Is there no limit to ingratitude? Practically on the very same day that the Fund gave forth this sage 'advice', the uncouth, gluttonous European governments undertook to revaluate their currencies upward under the derelict sponsorship of Great Britain! The U.N. Economic Commission for Europe (this time a European Institution) urged that appreciation of European currency be tried as a means of lowering the prices of imports, reducing speculation, and improving Europe's terms of trade with the outside world.

Now it must be understood that this move was one of sheerest desperation. Currency is a type of toy which when manipulated this way or that can give only the most fleeting pleasure. In the spirit of our time, the enjoyment can endure longest when the toy is used by one and not shared in common. No such luck, however. In 1949, when Britain devaluated she must have been heartened to find that she was not alone in the world — other countries having immediately followed suit. The desperate character of this tactic is revealed in that at the same time it was supposed to get rid of 'surpluses' by lowering the prices of exports, it simultaneously raised the prices of imports. The only advantage consisted in beating others to the

punch — and even this was cancelled for Britain when the other soft currency nations demonstrated so unequivocally their loyalty to British leadership. One country, however, was brave enough not to join in the mêlée. The United States, trusting her productivity and her 'liberal' tariffs, not only did not devaluate but was kind enough not to exert her influence to prevent the others from doing so!

In April, 1951, Britain frantically decided to turn the toy upside down with the intention of easing the toll which high import prices were taking in the trade balance — of course, also making it more difficult to sell products with higher export prices. Again she was joined by her continental partners who apparently were not worried by the export problem since they knew that the American economy was committed to heavy purchases abroad (the cute devils!). Ah, but this time a surprise was in store for them.

'Appreciation of currencies under current conditions (said U.S. Secretary of the Treasury, John W. Snyder) is likely to have the effect merely of giving a temporary advantage to a particular area to the detriment of the defence area as a whole and also to the detriment of the economic situation in the rest of the world.

'In my opinion, there is no justification for such a course of action at a time when the U.S. is engaged in a great rearmament effort, and is making a major contribution to friendly countries engaged in that effort.' (New York *Times*, 6.6.51.)

What Mr. Snyder found particularly obnoxious in the E.C.E. report was the too candid and fatal observation that while a general revaluation of European currencies would result in higher prices for imports from the sterling area the effect would be negligible because raw materials from that area were going mainly to the U.S. anyway. Mr. Belair, Jr., reports that, 'because any appreciation of sterling would cost this country additional billions for defence materials, Mr. Snyder decided to make the American position perfectly clear'.

'Although officials declined to speculate on the results of any general disregard of Secretary Snyder's advice, it was clear that it could have disastrous consequences for the Administration's Mutual Security Programme of economic and military aid for which the President has asked Congress for $8,500,000,000 for fiscal 1952.' (*Ibid.*) (The results, as the reader knows, have gone beyond the speculative stage.)

With this one blow the currency toy was demolished. The bleak epitaph appeared as a headline in the N.Y. *Times* of 11th June, 1951: REVALUATION SPENT AS ISSUE IN LONDON.

III

Thus the twilight of capitalism displays a regeneration of competitive forces, a final reassertion of its youth. And just as with all efforts of the senile to regain the ardour of bygone years, European capitalism is betrayed by the creaking of its bones; it exhausts itself and approaches nearer the end. In the period of economic contraction, the success of any one nation in expanding exports can only mean the defeat of another. The penalty for defeat is a worsening trade deficit, the gradual diversion of unsaleable production into armaments, and consequently, since the amount of exchange left to finance further imports constantly diminishes, the elimination of the

defeated country as a market. Hence, the 'victory' turns out to be a Pyrrhic one, for at every point that one nation succeeds in penetrating the markets of another she automatically narrows her own trade opportunities and is herself forced to rearm. Throughout this self-negating process of contemporary European capitalism the importance of markets does not diminish. It is true that the volume of trade in consumer goods eventually declines, *but the competition for whatever is left becomes more intense because the increasing burden of war production drives the West-European nations with unrelenting necessity toward finding outlets for whatever remains of their civilian economies.*

What is unique about American policy is that it is compelled to recognize the futility of such efforts. The U.S., with decisive control over raw materials and a productivity twice as high as her most formidable competitor, is far more capable of considering as the European governments do that rearmament, as the least desirable alternative, must be avoided through an expansion of exports. Had the U.S. acted in accordance with European motives and initiated a tremendous and in fact invincible export drive in 1950 the result would have been chaos in Europe. Certainly, if this condition were attained it would be superfluous to add that, in line with what is given above, Europe would no longer be a market for American goods. The American government, however, did not need to anticipate that far ahead. Indeed, the slightest whiff of a depression in 1950 was enough to embark it on a programme, not of exports, but rearmament.

An equally important recognition that American policy has made is that the European nations cannot be left to their own devices. They, too, must be made to realize the futility of trying to maintain civilian production, but not because their efforts to expand exports are bound to trespass upon America's market preserves. They must rearm because the retention of consumer goods production on the basis of intense economic rivalry cannot but create political instability that might easily engulf the colonial world and threaten American capitalism itself. Without war production which, besides its other 'valuable' functions, provides the means for 'pacifying' restless populations, the European nations would quickly pass over to the acute stage of economic depression. The debris of competition on the battlefield of a saturated world market can only consist of a further hardening of trade arteries, again 'surpluses', extensive unemployment, declining living standards, and ultimately the seepage of a revolutionary mood into the minds of millions of impoverished people. The African and Asian empires of Europe, continuously hovering about the kindling point, would burst into flame upon any severe internal weakening of the metropolitan countries. The entire conflagration might not only cut off America's sources of raw materials but might inspire the hitherto narcosis-ridden American people to do something to throw off the yoke whose oppressive weight they, too, must feel. It is for this reason that American policy is designed to compel the Europeans to rearm, both to solve the old problem of 'overproduction' as well as to handle the social problems that will arise in the new order of the permanent war economy. The American economy can so little tolerate instability that it can not allow the pace of rearmament to be left to the doddering European politicians who are not willing to risk a direct encounter with the popular resistance to totalitarianism.

Fascist states solved this problem in a simple fashion. Military conquest enabled them to gain direct control over the victim's economy and break its competitive backbone. Industry was then destroyed, transplanted, or reorganized to fit the needs of the victor, and the population which had been supported thereon was either cremated or put into slave labour camps. This has been the case with Nazi Germany's treatment of Central Europe and Russia's present policy for the East European 'People's Democracies' where class privileges have been abolished to the point where everyone can either starve or work to death.

To-day, American imperialism cannot operate in a manner so direct. Once again democracy appears as an obstacle both in regard to preparing its own population for a war economy as well as Europe's. To overcome this limitation it was necessary for the American government to do two things: first, to create an atmosphere of 'defence', and, second, to use its tremendous economic power to force European rearmament.

The first requirement has been satisfied by the deliberate provocation of a small-scale war. The Korean incident served and still serves as the bloody lubricant to overcome popular inertia and to establish credulity for gearing rearmament to an ever higher pitch. It is the legal ground upon which austerity programmes are being imposed by the U.S. upon all members of the Atlantic 'community'. Considering the pitiful weakness of the 'enemy', that his weapons consist largely of small arms, spears, bugles, and even rocks that are used in desperation for anti-aircraft purposes, the excessive duration of the fighting has assumed a most incredible artificiality when viewed in terms of the war's declared goals. The destructive power of proximity shells, napalm, and other ingenious devices at the allies' disposal is enough to turn back any 'human sea', particularly when thousands of its wretched components can only get their weapons off the backs of dead comrades. Nevertheless, despite the fact that the tunes wheezing out of the accordion warfare were beginning to annoy most people, each 'reversal' served the purpose of convincing everyone to intensify efforts to defend themselves against the 'communist menace'. Indeed, the unique way the strategic retreats were planned and utilized by the U.S. recommend an amplification of Clausewitz's old maxim. Now it should hold that war is another means of pursuing politics — not only against one's enemies, but against one's 'allies'!

To-day, the war is called 'truce' because, as was suggested earlier, people are getting heartily fed up with it. And if the 'truce' should finally materialize into a real end to the fighting it will be because the American government will have recognized that there is such a thing as a limit to popular imagination. By that time an even greater 'menace' will have been found elsewhere.

The second device is equally deliberate and by far more effective. After all, the decision to rearm on the basis of exigencies created by the Korean fighting is merely one which each nation can make according to its own discretion. However, when failure to comply with American demands can result in complete economic prostration the choice is no longer free. It was necessary for the U.S. to seize complete control over one vital phase of European production in order to establish irresistible authority over her economic policies. Manœuvrings for such a position began with the accelera-

tion of the American stockpiling programme at the outbreak of the Korean War:

> 'It seems scarcely credible that as recently as September, 1949, the British government was begging the United States to buy tin, rubber, and other sterling area commodities to stave off a further decline in their prices and in the dollars they earned for the sterling area. The United States had a stockpiling programme at that time.
>
> 'Nine months later [enter Korea — J.R.] when sterling prices were shooting up (after devaluation) the United States advised the world that it still had $2,600,000,000 for stockpiling unspent. It then proceeded to spend this on a rising market in the face of increased demand from normal business activity plus the stimulus to private buying provided by the Korean War.' (N.Y. *Times*, 28.3.51.)

By this openly provocative gesture, the U.S., after bidding up prices beyond those which the Europeans could afford, cornered the raw materials market. The blow landed well below the European belt since it is precisely with respect to raw materials that Western Europe is vulnerably dependent upon foreign sources. If these sources are cut off because of inaccessible prices, then even the pitiful vestiges of Europe's economic and political independence are forfeited. Ironically enough, it was in the course of negotiating the European aid programmes that the U.S. acquired the power to perpetrate her present policy. Every treaty from the Marshall Plan and the British loan to the monetary agreements, stipulated America's right to trade freely with the various colonial empires.[13] Not long after the Korean fighting began the U.S. was in a position where she could send her envoys on friendly tours of Western Europe casually remarking that the allocation of 'scarce' raw materials to any country would depend on that country's willingness to repress 'non-essential' production and contribute to the war drive.

Efforts to interpret American manipulation as a move toward self-preservation in the face of the world supply of raw materials being inadequate for a war-stimulated demand miss the point entirely. The more than 100 per cent. price rises in tin, rubber, copper, and other industrially strategic materials since June, 1950, is not the result of normal competitive practices alone. More, it represents an extension to the world market of a typical monopolist technique familiar to large corporations: that of using superior resources to outbid the other fellow, corner his source of supplies, and thus force him to his knees. Current stockpiling programmes are designed to pursue such a policy as in the case of the U.S., or else to protect one's self in the face of it as in the case of Western Europe.

In this light it can be seen that the so-called raw materials shortage is not so much in terms of current production needs; i.e., that the world cannot produce enough to meet the immediate economic requirements of each nation. Certainly, if Europe had only to feed, clothe, and house its population, there would be no shortage. The shortage, when correctly considered, reveals itself in terms of the additional demands that are placed by the degree of arms manufacture to which the Europeans are already committed

[13] See Appendix 8, pp. 688-696 of Robert Brady's *Crisis in Britain*, London, 1950.

and, more important, by their stockpiling efforts which are designed to insure future production against American control.

Besides the war scare and control of raw materials, the attempts of the American government to destroy Europe's protective mechanisms, seal off her trade outlets, and create general havoc in her civilian economy (described in Part II), constitute the third technique for forcing European rearmament. The temporary disorders fomented to-day are a means of bringing Europe to a more durable 'stability' in the future.

* * *

It becomes clear both why and how the noose about Europe's scrawny neck is being unremittingly tightened. Every hope that the timorous European politicians might have in order to justify their collaboration with the U.S. is being ruthlessly shattered. Mr. Wilson's 'disarming' assurances about a return to civilian production in 1953 will comfort only the blind. Considering America's expanding armaments budgets this prospect appears ridiculous. Even if an effort toward a peace-time economy is made, there are compulsions at work (with which the reader has been made familiar) which would limit its duration to five months — if not five days! — as compared to five years after World War II.

Any American 'economic aid' that approaches the more benign meaning of the words must also be written off. It is becoming more clear that the American government does not intend permanently to underwrite the wayward European economy. Point Four, the 'bold, new programme of economic assistance', has become so 'bold' that it no longer requires a special agency to administer it![14] In the $8,500,000,000 Mutual Security Programme that President Truman sent to Congress on 24th May, 1951, no funds were earmarked for Point Four. Out of that sum, $6,250,000,000 was to go for armaments manufactured in the U.S. and $2,250,000,000 was to go largely for armaments manufactured in Europe! — This is economic aid? — Congressional 'economists', sensitive to the burdens of taxation upon their poor constituents, considered the 'aid' too extravagant and lopped off $1,000,000,000 — from the amount going to Europe! O Bountiful Providers! O pure-sounding Horn of Plenty! Both in this world and in the next may you and your children receive such 'aid' as you have dispensed to others![15]

IV

The ruthlessness and colossal hypocrisy with which the American government is coercing Western Europe as well as her own population is rapidly approaching the historical precedent set by Stalinist Russia. The State Department appears so entranced by the inhuman image that Russia

[14] The Technical Co-operation Administration was reported on 10th June, 1951, to be on the verge of dissolution. Last year it received a 'bold' appropriation of $34,500,000.

[15] When some French and Italian officials heard of Congress' generosity they threw up their arms and said, in a manner that must have brought tears to millions: 'We cannot rearm!!'

The unexcitable British officials, however, remained firm as always.

has placed in the mirror of the future that it is rushing headlong to embrace it, nay, promises to pierce the mirror itself and emerge as the new standard. What the U.S. has only suggested in the ECA Productivity Plan to have American companies *adopt* certain European companies harks toward what the Russians have already achieved in the Sovrom corporations and in their equivalents in other East European countries. No doubt the same Plan's proposal to foist piece-work incentives and production quotas upon West European labour must have as its model the Stakhanovite reality pervading the entire Russian empire, not to mention the slave labour camps. What the Russians have done to destroy the middle class, coerce public opinion, and deny civil liberties, through the liquidation of the kulaks (the current deportation of the Hungarian and Rumanian middle classes), the Moscow trials, and the MVD, — the U.S. is doing through war contracts, the Hiss-Remington Trials, and the FBI. With regard to puppet régimes, the Churchills, Adenauers, and Plevens, who by this time can be considered as only remotely human, come closer toward being the complete automatons the Russians have installed in the 'People's Democracies'. Finally, 'People's Democracies' is but one indication of the perfection to be attained with respect to the bastardization of concepts. Here, too, the American government is not far behind. What the Russians have done to 'communism', the U.S. is doing to 'free enterprise' and 'economic aid'.

Despite the brilliant success with which the U.S. government is catching up to her Russian mentors, many European officials might be commiserately pleased to know that American policy, too, is not without dilemmas. Since it is necessary fully to appreciate what is involved, we will be forgiven for intruding upon the *very* private mental life of a high State Department official who in all probability reasons as follows:

'Although we're doing our best to force a war economy upon the Europeans, we know very well that the job cannot be consummated without a totalitarian economic and political structure, i.e., fascism. But the trouble is that even fascism is not so stable a system as we would like. War production is most tenable for those countries which are largely self-sufficient in basic industrial and agricultural resources. When a net-importing country, or one whose industry and food supply is heavily dependent upon foreign trade, goes over to war production, we have seen that she soon begins to find it impossible to finance essential imports. It is no surprise to us, therefore, that when Germany and Italy turned fascist, their rulers cultivated a nationalist mystique which was to provide the impetus to imperialist expansion and the direct appropriation of foreign resources. It should also be no surprise that the Spanish problem to-day is the result of a country which had gone fascist but failed to expand. Now, after fourteen years, despite all efforts to keep the population divided, the régime is so corroded that even clerics and army colonels have joined the underground.[16]

'So where is our policy leading us? Certainly, if we had our own troops occupying all of Western Europe we could manage to keep things quiet. But we would have to complete the regimentation of our own population here in the U.S. before we could do that. On the other hand, if we depend

[16] For a good account of political conditions in Spain read Jean Marabini's article, 'Spain against Franco', that appeared in the September, 1951, issue of *Harper's Magazine*.

upon native fascist elements in Germany, France, and Italy, there is every indication that the Guallists, Socialist Reichs Party, and the L'uomo Qualunque, would start kicking out all over the place and would soon bring about conditions the very opposite of those we desire. Thus war production and fascism for Western Europe is at best a temporary solution. In the long run it looks like we'll have to carry the Morgenthau Plan to its logical conclusion.'

Alas, poor Europe, the conclusion seems to be that the final 'peace' comes only with the grave! It is because of this that all Europeans should read diligently the lurid details of the fighting in Korea; for despite any temporary improvements, it is the Korean War-truce that contains in microcosm the fate of capitalist Europe and the answer to its crisis. Once again the U.S. will turn shyly aside in what is already known as the sign of the raised and beckoning finger. Upon this gesture — *without which the Russians would not dare to war upon Western Europe* — another 'human sea' would pour into West Germany and France. 'Caught off-guard', the American-dominated high command would call for a 'strategic retreat', this time to a 'perimeter' somewhere near the Pyrenees, and when this is done the mighty counter-attack will begin. Unlike World War II, the poor Russians will not have enough time to collect watches and furniture to send to their destitute families back home. They will not have time to wallow in West European 'wealth' and become demoralized, for with great haste the Americans will decide that it is necessary to 'cut the enemy's lines of supply' and to 'prevent him from getting logistical support from conquered factories'. American pilots who were just playing around in Korea will now have the chance of a lifetime. Thousands of slick, quick, streamlined, hydramatic, pushbutton, knee-action, luxury comfort bombers will proceed to make 'round-the-clock raids' from their bases in North Africa. In a few months Europe's roads and bridges will have been made a shambles and 'strategic atomic bombing' will have destroyed every major industrial and urban centre. There will be no need for special gas chambers and crematoria to care for the new 'surplus' population that will be added to those left over from the last world war. Upon the millions of uprooted people the efficient Americans will confer the blessing of radioactivity. *Thus will Western Europe be 'defended' against the 'communist menace'*! — And who knows, perhaps all this will be going on in the course of 'truce negotiations'?

* * *

The destruction of Europe is no longer a matter for conjecture. What stands in the way of war production as the 'ideal solution' to the problems of capitalist society are the habits which people have acquired as a natural heritage and those which a younger capitalism instilled. Human beings who have that pernicious tendency to require a certain minimum of food, clothing, and shelter for their sustenance and not armaments — this is the greatest obstacle to the complete eradication of civilian production. Not even the totalitarianism that the U.S. government would prefer in Europe would be able to smother the simple fact that people must eat even to produce guns. On account of this deplorable human 'weakness' the capitalist

economies of Europe to-day are compelled to expand at the expense of one another and unsettle the world. And if these economies were completely militarized they would also be compelled to expand at the expense of one another, this time not through exports but direct conquest, and also unsettle the world. It is because of Western Europe's volatility under either condition that 'agrarianizing' and 'Morgenthauing' have become permanent additions to the vocabulary of American State Department officials.

The destruction of Europe appears as the preposterous, devastating, but 'logical' climax to the mad waste and destruction of human resources, and all the manifold insanities that afflict the rotting capitalist world. Under the present order, European industry has experienced a horrible transfiguration. Instead of being the agent for eliminating poverty, it not only preserves and deepens it but is its own nemesis. European capitalism is a garrulous old man torn from within and barely capable of holding its sagging flesh together. It sways and stumbles, at each point threatening the precarious balance of the world to the obvious annoyance of its giant offspring, the United States, who will soon be ready to administer the kiss of death. The tragedy that unfolds to-day is on a scale never dreamed of by Sophocles — with this difference: the modern Oedipus is fully aware of what it is doing.

The alternative to destruction emerges ever more clearly as the madness intensifies and hurls itself more and more violently against reason. The way out simply bursts from between the lines of rising production figures which are to-day a barometer of misery and a mockery of progress. It is the astonishing vigour of European industry which still holds the promise of ressurection from the crippling limitations of capitalism. There is no doubt that the productive capacities of Western Europe and the Asiatic countries, if oriented to human needs and not to profit, could launch an era of unprecedented abundance. What is required for this is not merely the nationalization of industry which to-day, far from giving the people the opportunity to direct production toward their own needs, is both a symptom and agent of capitalist decline. Nationalization could reach its *authentic* goal only when the external conditions are also transformed; only when the world market and the economic relations between countries have been shorn of all competitive barriers and each nation welcomes the produce of another and gives freely of its own.

Not even the American economic and political structure (certainly not that of her immeasurably weaker Russian accomplice) could withstand the shock of such a transformation. But it is obvious that even judging from present policies the U.S. is the greatest, most powerful obstacle to European survival. Therefore, the first step toward the radical reorganization of European society must be the severence of all dependence upon the U.S. Every basic ingredient for an economy of abundance can be found in Europe and in countries such as India, Malaya, Indonesia, etc., which, when offered complete equality and opportunities for the fullest economic development, have just as much to gain from setting themselves free of the U.S. as Europe has.

There is no possible excuse for not taking this course when the alternative can only hasten the end. At this point the Neros who rule Europe apologize by tuning up their fiddles to a mock cacophony of despair: 'Woe unto us,' they wail, 'if we should attempt this, would it not bring the wrath of the

U.S. upon our heads immediately?' What these 'gentlemen' conveniently ignore (if they have at all thought seriously of alternatives, which is doubtful) is that the U.S. government has still some way to go before it can revise domestic institutions to the point that is necessary in order to be able to act directly on Europe. *It is for this reason that every day that passes in which the opportunity to unify and liberate Europe is not seized will bring Europe closer to oblivion.*

The European politicians have amply demonstrated their incompetence for the task which lies ahead. Christ himself would marvel at these men whose cheeks have been veritably worn away with so much turning. However, their obsequiousness has no lofty inspiration. They are simply large-scale prostitutes who sell not only themselves but entire nations at whose helms they stand.

The entire initiative devolves upon the people of Europe themselves for whom the voice of reason becomes more compelling as misery increases and spreads out among virtually all layers of the population. Let them but make even one mighty negative gesture such as a concerted struggle against remilitarization or else silently laughing their drones out of power, and they will find millions of allies. One may safely say that the resurgence of a truly anti-capitalist movement in Europe would bring thousands of American intellectuals to leap off their psychoanalysts' couches upon rediscovering a meaning in politics which the failure of the corrupt movements of the past had shattered. On the other hand, if the people of Europe do not act, all that will remain of the vast edifice of European culture will be the monosyllabic imprecations that a few illiterate survivors will mutter against a generation who so easily gave up the real possibilities for man's self-realization.

1st November, 1951.

AMERICA TO THE RESCUE

Old ineffective penicillin is being sent from the United States to Europe, Dr. Loren W. Shaffer, professor of dermatology at Wayne University Medical School, told the Colorado Medical Centre here.

'I was shocked to find Europe swamped with inert penicillin from the United States,' he said. 'Over there large supplies of inert or outdated penicillin are being received and used to such an extent that European doctors have begun to question the effectiveness of the drug. They are getting the dregs of our supply because exports are not properly controlled.'

Denver, 25th March (A.P.).

The Korean Ambassador, Mr. John Chang, called at the State Department to-day to discuss with Mr. Dean Rusk, Assistant Secretary of State, the problem of Korean refugees now crowded within the United Nations lines. Mr. Chang pointed out afterwards that the main difficulty was that all the available shipping was bringing in military supplies and that there was no space for food and clothing for the ten million refugees, three million of whom were in the Pusan area.

The Times, 9th September, 1950.

MATERIAL AND DOCUMENTS

1. AMERICA: THE JAPANESE EXPROPRIATIONS

For many years before the second World War, Japanese emigrants to America settled along the west coast of the United States. Many of these enterprising people entered the Santa Maria valley of California and became farmers. They slowly improved their land and cultivated it over the years until they managed to secure themselves and their families. They were hard-working folk; all that they had was acquired by effort and with an honesty that can be regarded as unique in the dollar-obsessed States. And they asked no more than to be left to themselves, to manage their affairs with the same integrity that they had in the past.

When Franklin Delano Roosevelt, America's war President with the tilted cigarette-holder, managed to manœuvre Japan into war (the entire scandal of 'Pearl Harbour' has since been exposed by the late Professor Charles Beard), a veritable holocaust suddenly descended on the Japanese emigrants of California. After a brief 'warning', military trucks rolled into Japanese-American communities and neighbourhoods of long standing. More than a hundred thousand persons of Japanese descent were imprisoned behind barbed wire. Not only did this 'clean-up' include people whose sole crime was that they were born in Japan, but it also included children who are legally regarded as native Americans. Indeed, at least two-thirds of these persons were naturalized citizens, individuals who had essentially severed their connections with their land of birth and for many years had succeeded in rooting themselves in American life.

Roosevelt's barbarous assault on these Japanese-Americans has been justly characterized by Professor Eugene V. Rostow (Yale University) as '. . . a tragic and dangerous mistake. That mistake is a threat to society, and to all men. Its motivation and its impact on our system of law deny every value of democracy'. While Roosevelt was issuing holy pronunciamentos on human rights and democracy together with the Byzantine despot, Stalin; while he was receiving plaudits from the supine, career-hungry 'liberals' — most of whom were too busy cavorting with Stalin to notice the rape of human liberties in their own backyard — thousands of people were being herded into concentration camps in the western part of the United States for no other crime than being Japanese. There they remained throughout the war years, like scorned lepers whose 'misfortune' it was that they had not been born with the champagne soaked complexion of Mr. Roosevelt, that they had not cultivated the ruddy pinch in his cheeks (nourished no doubt by Stalin's caviare at Yalta and Teheran).

Roosevelt's barbarism reduced the Japanese farmers and fishermen to penury. The losses suffered by these evacuees has been conservatively estimated in the neighbourhood of 400 million dollars. After Roosevelt was buried out of sight, after the atom bombs were dropped on Hiroshima and Nagasaki (unnecessarily snuffing out the lives of thousands of civilians), the war came to an end and the evacuees were permitted to leave the concentration camps. Many returned to the places where they lived before the war only to find properties which had been so assiduously earned over a lifetime of work belonging to others. The simple fact is that the expropriation of

the Japanese-Americans had been as calculatedly and cruelly effected as their imprisonment.

In many instances, for example, the Army had taken the Japanese into custody with virtually no advance notice. When soldiers arrived, armed with machine guns and fixed bayonets (this against a perfectly harmless civilian community!), they were accompanied by a host of vultures who bought up the possessions of the Japanese at a fraction of their value. This expropriation of a people whose only 'crime' was their racial origin — and by a state power that during the last war celebrated its democratic goals *ad nauseam* — reached unbelievable proportions. One family, the Hagawaras, lost an enterprise to the city of San Francisco which they had started in 1894. This enterprise, the 'Japanese Tea Garden', the result of long investment by the Hagawara family for over two generations and valued in the hundreds of thousands of dollars, was taken away from them on three days' notice. When the Hagawaras were released from 'confinement', three years later, they found their property occupied by a non-Japanese.

As the scandal of this act gained some public attention, the Government announced that steps would be taken to provide compensation. Only three years after the war, however, did Congress finally get around to passing an Evacuation Claims Act. This Act and the machinery involved in passing on claims has proved to be a blatant farce. The Act 'provides' recompense only for claims up to $2,500. The red tape, investigations, procedural twists and turns, and bureaucratic obstacles that confront the claimant is discouraging and vicious in the extreme. It is estimated that if these obstacles continue, it will take thirty-six years before all the claims against the Government will be met.

In the three years that the Claims Division has been in existence, about $250,000 has been spent investigating the claims of the Japanese-Americans. During this period only $25,000 was distributed as compensation. This means that $10 has been swallowed up by the bureaucracy for every dollar returned to the Japanese! Even this miserable pittance often represents a drastic diminution of the actual values lost by the claimants. Indeed, the only alternative to long waiting seems to be the reduction of one's claim by about 25 per cent., that is, bitterly giving up a large proportion of one's property because of a planned bureaucratic jungle. Even after this hold-up is made, the claimant must wade through long and perfectly idiotic questionnaires.

As a result of the Claims Division's 'technique', claims valued at $1,200 are often scaled down to $900 and finally awarded about $400. The claimant (when he has the 'good fortune' to be reimbursed by 'his' government!) frequently receives not three quarters of his lost property but only one quarter — that is, the very percentage which he originally yielded to the government.

Thus the richest country in the world, supporting a national budget of fantastic billions for guns, explosives, atom bombs and other 'necessities' answers a community which it imprisoned ten years ago because of their race.

21st April, 1952.

Newsletter to *Sloga* (*Unity*), an anti-Titoist weekly published in Australia for Yugoslavs abroad.

2. TANGANYIKA: THE WAMERU EVICTIONS

In August, 1951, a Memorandum was sent to the officials of the United Nations which set out the case of the Wameru of Tanganyika, who were threatened with eviction from their land. As far as we know this appeal has not to date been considered by the Fourth Committee, or by the Trusteeship Council.

We set out briefly below the previous history of this people and their land, and what has taken place since. This has been prepared on the basis of the Wameru Memorandum, British Colonial Office statements, correspondence with the Wameru and others, and a report from a local barrister.

The land from which the tribe have been evicted is in the Engare-Nanyuki, Ngabobo and Leguruki areas. It was the ancient tribal land of the Wameru which had been taken from them by the Germans. After the First World War, however, the British authorities told them that they might have the land back on condition that they paid for improvements made by the Germans. By collecting among themselves and by voluntarily raising their poll-tax, they satisfied the Government in this regard. A document was signed witnessing that the debt had been paid, and they understood that the land was theirs once again.

In June, 1949, they were visited by the District Commissioner who informed them that they were going to be moved to Kingori. On this occasion and at succeeding meetings with District Commissioners, they made it clear that they regarded the land as their own and that they were opposed to removal and determined to resist, but they were told that this was the Government order and they would have to go.

Despite this the Wameru continued to hope that the eviction notices would not be carried out and based their hopes on statements made by Lord Hall, Secretary of State in 1946, who had declared that the Government had no intention of giving the best land to non-Natives at the expense of the Natives. The change in Government policy is based on the Wilson Report of February and June, 1949, which recommended the removal of these people to the Kingori area. The reason given for this is that the Wameru occupied a pocket of fertile land in an area which would be suitable for cattle-ranching by Europeans.

It is obvious that land which is suitable for cattle-raising by Europeans is not therefore unsuitable for cattle-raising by Non-Europeans. One cannot avoid the conclusion that the principle underlying this recommendation is that Native and non-Native areas should be separate and homogeneous, and that where plans for land settlement are in opposition to the rights and wishes of indigenous land-holders, the latter may be set aside.

In 1951 the Colonial Secretary received a petition from the Wameru which was rejected. The reasons given were as follows:

(1) The move is part of a larger scheme of resettlement and development which is in the best interests of the Wameru.

(2) The new areas given to the tribe are greater than those formerly occupied.

(3) Compensation will be paid.

(4) Europeans had been moved in order to free the newly allocated land.

(5) It was said that though the scheme was announced in 1949, protests had only recently developed, and in addition that the scheme had been accepted by the Chief of the tribe.

The reply made by the Wameru to these points is as follows:

(1) The Scheme in General

The Wameru do not believe that the scheme is in their best interests, but on the contrary regard it as a move on the part of the Tanganyika Government to create another 'White Highlands' on the same lines as in Kenya.

(2) The New Area Allocated

The land which has been offered to them now, is in fact already their own. Certain portions of it were occupied by Wameru families and the rest was either lying fallow in accordance with a system of rotation, or alternatively being held in reserve for occupation by the new generation in accordance with tribal custom which always keeps large areas in reserve for the natural increase of the tribal population. They say, 'In effect you give us part of our own land in exchange for our relinquishing a better part to you'.

The Wameru have also claimed that portions of the new land are tsetse-infested. This has not, as far as we are aware, been denied by the Government, and remains to be proved or disproved.

The impression gained from a reading of the tribal and the Government sources is that large sections of the newly-allocated areas are in fact tribal property, and that another area has been added to the allocation. Possibly it is the latter which is claimed to be tsetse-infested. These questions of the ownership of the land and its quality certainly require investigation.

(3) Compensation

Compensation is payable if at all only as a matter of grace and the terms are in the discretion of the Governor.

(4) Expropriation of European Settlers

Farms from which Europeans have been moved were formerly the property of the Wameru tribe, taken from them by the Germans, and later 'alienated' by the Tanganyika Government.

The law entitles the Europeans to argue as to terms and amount of compensation before the High Court, which privilege does not extend to the Africans as mentioned above.

(5) Consultation and Consent

It will be clear from the brief introductory history outlined above that the Wameru expressed strong opposition to their removal as soon as it was announced to them in June, 1949 (The Wilson Recommendations were published in February and June, 1949).

The consent of the chief is not regarded as valid by the tribe for the following reasons: 'According to an old constitutional custom in our tribe which was vested in 1945 and against which none has dissented, none of

the land or other fundamental rights of our tribe may be alienated by our chief *without prior consultation with the people.*' (This sort of constitutional check on the powers of the chief is very widespread among African tribes, but British administration has generally chosen to ignore it.) 'There has been no such counsel taken by our chief in this instance. Nor has there been any consent of the people . . . to the proposed evictions. Incidentally we have been asking for the removal of our present chief for years in vain. We have no confidence in him as the breaker of pledges, custom and law.'

The Wameru attempted passive resistance to their removal, but they were forcibly evicted by the police. Thirty-seven huts and store-houses were burnt. At a meeting held to discuss the passive resistance, six Wameru were arrested and subsequently imprisoned.

At a mass gathering held on 23rd December, 1951, the Wameru who have been evicted unanimously resolved that they would never give up the struggle to return to their homes, and never accept any compensation. Munya Lengoroi was confirmed as their spokesman and they requested him to continue to present their case until either they had won justice or lost their lives.

In their most recent communication they say: 'Our homes have been burnt, our cooking-pots broken, and our beds strewn out in the open, our cattle milked, slaughtered or taken away, our crops destroyed in the fields. A mother's house was destroyed and her baby of three days died on removal. The very old perished in the trucks as your askaris removed them forcibly from the shadow of Meru Mountain.

'We hope that as protected persons placed in your trust, you will not forsake the promise of protection and hear our prayer.'

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MAN'S BEST FRIEND

A number of poor families in Montreal are serving their children canned dog food in sandwiches, according to Miss Nan Garvok, of the Montreal diet dispensary.

She said some grocers reported that their sales of canned dog food had doubled in recent years.

'We feel repelled by it, although it's perfectly harmless,' Miss Garvok commented.

Montreal, 25th April (A.P.).

Because of the leather shortage and the high cost of goatskin and lambskin, British manufacturers are processing dogskin for lining shoes. Semi-processed dogskins are also being exported to the United States for use in lining gloves and shoes.

London, 4th February (A.P.).

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